

This report contains the research articles which publish by the faculty members of CIIT Lahore, during the year 2013. Abstracts were given of all the articles which were available on internet, additionally the link for full text was also given against each article.

RESEARCH OUTPUT OF CIIT LAHORE FOR YEAR 2013

ABSTRACT BOOK

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Defence Road, Off Raiwind Road, Lahore
Tel #: +92 42 111 001 007 Ext. 856
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Preface:

CIIT is not only providing quality education, but also producing the valued research publications. Due to this research work, the CIIT got its better ranking in Pakistan and Higher Education Commission declared CIIT at top ranking among Pakistani Universities.

The credit goes to the researchers of CIIT, who, as usual, produced lots of papers in the year 2013. For this accomplishment, the contribution of researchers of CIIT Lahore is also extraordinary. They produced 242 journal papers during the year 2013.

The compilation in your hands consists of the papers which published during the year 2013 and at CIIT platform. We only included journal papers for this anthology. The purpose of this compilation is to record the research work of our faculty members and also to facilitate the users to get all the research papers of all departments in one binding. Apart from the record, I am also sure that this compilation will provide the guidelines to new researchers of CIIT and to the researchers of other institutes, as well.

I am very much thankful to worthy Director Dr. Mahmood Ahmad Bodla and Dr. Robbina Farooq, Convener Library Affairs Committee, they not only provided the guidelines, but also encourage us to prepare this compilation in appropriate form. I am also very much thankful to Dr. Talat Afza, Hea ORIC, her office provided the data to compile this report. Without this help, it was very difficult to prepare this collection of research articles. Mrs. Fatima Usman, Assistant Librarian also did a very good job to convert the “data” into a “information”. She is really a good asset of the library.

With Regards

Muhammad Tariq Najmi

Incharge, Library Information Services
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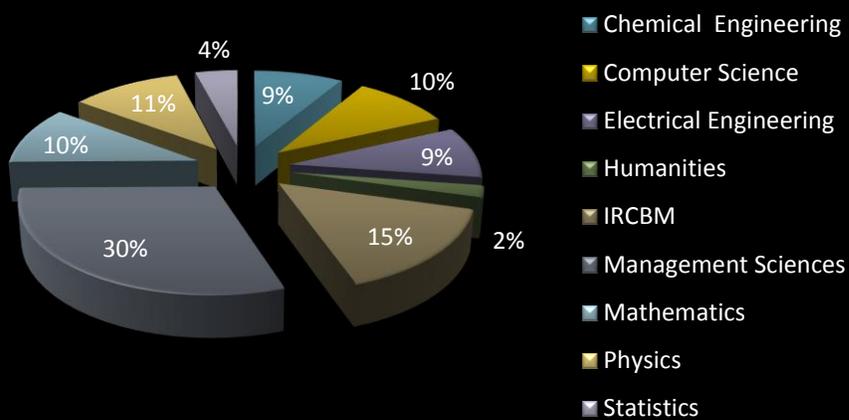
September, 2014

SUMMARY

RESEARCH PUBLICATIONS OF CIIT LAHORE FOR THE YEAR 2013

Departments	Journal Papers
Chemical Engineering	21
Computer Science	23
Electrical Engineering	22
Humanities	05
IRCBM	37
Management Sciences	73
Mathematics	25
Physics	26
Statistics	10
Total	242

Research Output Chart



DEPARTMENT OF CHEMICAL ENGINEERING

Journal Papers

1. Khan, W. A., Shahzad, K., Akhtar, J., Ghauri, M., Ali, N., & Akhtare, N. A. (2013). A Model Of Heat Transfer In A Circulating Fluidized Bed Combustor. *Science International*, 25(4).

Abstract:

The developed model is based on simplified cluster renewal concept and recent developments in hydrodynamics studies. The research work has been focused to develop the suspension-to-wall heat transfer model. In order to measure accuracy with real systems, the model was tested through experimental investigations in a specially designed fluidized bed combustor. The obtained results were compared with the model. The model predictions showed a good agreement with the present experimental data. Empirical correlations were also developed for axial as well as radial heat transfer coefficient.

URL: <http://www.sci-int.com/pdf/155692327721-%20785-790--Ghauri%20Chem.%20Engn.pdf>

2. Bashir, M. T., Ali, S., Ghauri, M., Adris, A & Harun, R. (2013). Impact Of Excessive Nitrogen Fertilizers On The Environment And Associated Mitigation Strategies. *Asian J. Microbiol. Biotechnol. Environ. Sci*, 15, 213-221.

Abstract:

The soaring rise in the anthropological production of nitrogen (N) fertilizers has been notable in the field of crop production. Despite several advantages the world is deriving from the use of reactive N, many environmental hazards including water and soil acidification, pollution of groundwater surface and other water mineral resources and accelerated ozone depletion have arisen as a result of the recurring use of excessive environmental N. The purpose of this paper is to highlight the impact of N in the environment. In addition, mention is made of management practices, such as manure storage and handling solutions, livestock management, pasture management for reduced N losses, balanced N application rates, proper irrigation strategies, efficient N cycling at the field level, runoff, drainage and wastewater management and other mitigation strategies. Conclusively, the use of Varian's Mathematical model, a model that dutifully delineates system theory in deterring over fertilization will be considered

URL: [http://www.researchgate.net/publication/253237845_IMPACT_OF_EXCESSIVE_NITROGEN_FERTILIZERS_ON_THE_ENVIRONMENT_AND_ASSOCIATED_MITIGATION_STRATEGIES_\(Final_Published_print\)/file/60b7d51f6a52fe756f.pdf](http://www.researchgate.net/publication/253237845_IMPACT_OF_EXCESSIVE_NITROGEN_FERTILIZERS_ON_THE_ENVIRONMENT_AND_ASSOCIATED_MITIGATION_STRATEGIES_(Final_Published_print)/file/60b7d51f6a52fe756f.pdf)

3. Farooq, A., Ghauri, M., Jaffery, M. H & Shahzad, K. (2013). Modeling Of Biomass Gasification With CO₂ As Gasifying Agent. *Science International (Lahore)*. 25(3), 497-500.

Abstract:

Depleting fossil fuels, increasing interest in biomass, enhanced carbon cycle, efficient energy systems and mitigation/capture of CO₂ have to work in close harmony for a sustained civic civilization. A biomass gasification process Mathematical Model using CO₂ as gasifying agent was theoretically investigated. The CO₂ taken from the water gas shift reaction is being recycled for the production of carbon monoxide and control gasification temperature. The derived model equations are computed using MATLAB. The gasification regime is investigated at temperatures ranging from 300K to 1400K and conversion 10% to 100%. The reaction order of CO₂ was 0.59. The developed reaction kinetics model for production of carbon monoxide in gasification system showed more conversion dependency of change in reaction rate on temperature than partial pressure. It was also found the reaction rate declined with the increase in conversion. Above 800K showed a dynamic shift towards a straight line with 100% conversion with drastic decrease in reaction time. The sweeping decrease is attributed to high temperature cracking of biomass.

URL: [http://www.sci-int.com/pdf/181508039314-497-500-Ghauri-Paid-25-3-13%20caption%20ok\[1\].pdf](http://www.sci-int.com/pdf/181508039314-497-500-Ghauri-Paid-25-3-13%20caption%20ok[1].pdf)

4. Ahmad, N., Ghauri, M., & Bazmi, A. A. (2013). Current state of HSE standards and activities on fuel filling stations in Pakistan. *Science International (Lahore)*. 25(1), 127-135.

Abstract:

Health, safety and environment (HSE), a multidisciplinary field that provides standard guidelines for maximizing the production in synchronization with improving health and safety standards of employees and keeping in view the environmental safety. In general, HSE management system provides the guidelines/techniques for identifying the different types of hazards, management of the risk control and most importantly provides the tools for reporting any incident/accident. HSE guidelines can be implemented in any business in any part of the world. However, in this paper the area of research is fuel filling station of Oil Marketing Companies (OMCs) in Pakistan. In order, to fulfill the demands of the consumers, all OMCs have established network of their fuel retail stations. A retail fuel station is a hazardous place as it deals with a very sensitive in terms of its high flammability properties. Several hazards with high potential risk have been identified on the fuel filling stations. Efforts have been laid to discuss the identified hazards on fuel filling stations along with guidelines that can be implemented for reducing the exposure and potential risks. The focus has been laid on fuel filling stations in Pakistan by observing the compliance of the safety guidelines versus non-compliance

URL: <http://www.sci-int.com/pdf/214106447822-127-135-%20Ghauri%20COMSAT%2025-1-13.pdf>

5. Majeed, K., Jawaid, M., Hassan, A., Abu Bakar, A., Abdul Khalil, H. P. S., Salema, A. A., & Inuwa, I. (2013). Potential materials for food packaging from nanoclay/natural fibres filled hybrid composites. *Materials & Design*, 46, 391-410.

Abstract:

The increasing demand for new food packaging materials which satisfy people requirements provided thrust for advancement of nano-materials science. Inherent permeability of polymeric materials to gases and vapours; and poor barrier and mechanical properties of biopolymers have boosted interest in developing new strategies to improve these properties. Research and development in polymeric materials coupled with appropriate filler, matrix-filler interaction and new formulation strategies to develop composites have potential applications in food packaging. Advancement in food packaging materials expected to grow with the advent of cheap, renewable and sustainable materials with enhanced barrier and mechanical properties. Nanoparticles have proportionally larger surface area and significant aspect ratio than their micro-scale counterparts, which promotes the development of mechanical and barrier properties. Nanocomposites are attracting considerable interest in food packaging because of these fascinating features. On the other hand, natural fibres are susceptible to microorganisms and their biodegradability is one of the most promising aspects of their incorporation in polymeric materials. Present review article explain about different categories of nanoclay and natural fibre based composite with particular regard to its applications as packaging materials and also gives an overview of the most recent advances and emerging new aspects of nanotechnology for development of hybrid composites for environmentally compatible food packaging materials.

URL: <http://www.sciencedirect.com/science/article/pii/S026130691200742X>

6. Tahir, M., & Amin, N. S. (2013). Photocatalytic reduction of carbon dioxide with water vapors over montmorillonite modified TiO₂ nanocomposites. *Applied Catalysis B: Environmental*, 142, 512-522.

Abstract:

Montmorillonite (MMT) modified TiO₂ nanocomposites were synthesized by single step sol-gel method. The samples were characterized by XRD, FE-SEM, HR-TEM, FT-IR, N₂-adsorption-desorption, UV-vis and photoluminescence (PL) spectroscopy. Modification of TiO₂ with MMT controlled the crystal growth and produced anatase phase of delaminated TiO₂ pillared montmorillonite. The size of TiO₂ nanoparticles reduced from 18.73 to 13.87 nm after adding MMT, while the surface area and pore volume increased. The UV-vis results identified blue shift in TiO₂ band gap for the MMT modified samples. In addition, PL spectroscopy revealed significant inhibition in recombination of photogenerated electron-hole pairs. The performance

of MMT modified TiO₂ samples for reducing CO₂ with H₂O to hydrocarbon fuels was investigated. The effects of parameters such as MMT loading on TiO₂, H₂O/CO₂ feed ratios, and reaction temperature on TiO₂ photocatalytic activity was studied. Loading MMT on TiO₂ enhanced the performance of TiO₂ and markedly increased CO₂ reduction to C₁–C₃ hydrocarbon fuels. The highest yield rates produced were 441.5 and 103 μmol g cat⁻¹ h⁻¹ for CH₄ and CO, respectively under UV light irradiations at 20 wt.% MMT loading, reactor pressure of 0.20 bars and 393 K reaction temperature. These results revealed silicate layers of MMT dispersed in the given TiO₂ sol system and vacant d-orbits of the MMT transition metal ions have obvious effect on the photocatalytic activity of TiO₂. The possible pathways and reaction mechanisms of CH₄ and CO productions were also suggested. Thus, MMT is a potentially attractive material to improve TiO₂ as a photocatalyst for application in photocatalytic CO₂ reduction.

URL: <http://www.sciencedirect.com/science/article/pii/S0926337313003482>

7. Tahir, M., & Amin, N. S. (2013). Recycling of carbon dioxide to renewable fuels by photocatalysis: Prospects and challenges. *Renewable and Sustainable Energy Reviews*, 25, 560-579.

Abstract:

Energy crisis and threats of global warming has accelerated the thrust for new renewable energy resources. Recycling greenhouse gases seems eminently potential to produce sustainable fuels as well as to reduce carbon emission. Various possibilities for implementing low carbon economy drive by practicing phototechnology are reviewed in this paper. In particular, different challenges and applicable solutions for efficient and economical conversion of greenhouse gases to renewable fuels are discussed. The roles of key parameters such as types of reductant, reduction potential, pH of mixture, metal-loaded and supported catalyst on hydrocarbon yield and selectivity are also investigated. Various types of photoreactors and different challenges in the design are also elaborated. It was obvious that modification of semiconductor photocatalyst, optimum operating parameters and suitable photoreactor design are pertinent for efficient CO₂ reduction to sustainable hydrocarbon fuels. In view of the current scenario, there are ample opportunities for producing renewable fuels and establishing a sustainable carbon neutral cycle using phototechnology.

URL: <http://www.sciencedirect.com/science/article/pii/S1364032113003304>

8. Tahir, M., & Amin, N. S. (2013). Photocatalytic CO₂ reduction with H₂O vapors using montmorillonite/TiO₂ supported microchannel monolith photoreactor. *Chemical Engineering Journal*, 230, 314-327

Abstract:

In this study, the performance of a montmorillonite (MMT)/TiO₂ coated monolith photoreactor was tested for the photocatalytic CO₂ reduction. CH₄ and CO were the main products having yield rates of 139 and 52 μmole g catal.⁻¹ h⁻¹, respectively. The other adequately significant products were C₂H₄, C₂H₆, C₃H₆ and C₃H₈. The catalytic reactor performance for CH₄ production was in the order of MMT–TiO₂–monolith (139 μmole g catal.⁻¹ h⁻¹) > TiO₂–monolith (82 μmole g catal.⁻¹ h⁻¹) > MMT–TiO₂–cell (43 μmole g catal.⁻¹ h⁻¹) > TiO₂–cell (7.7 μmole g catal.⁻¹ h⁻¹). The higher yield rates in monolith photoreactor were due to the higher illuminated surface area and efficient light utilization. In addition, the profound hydrocarbon yield rates over MMT/TiO₂ nanocatalyst supported microchannels were due to the efficient production and utilization of charges. The reaction rate and the adsorption–desorption phenomenon was postulated according to the Langmuir–Hinshelwood (L–H) model. A simple kinetic equation, derived to model the coupled effect of adsorptive photocatalytic reduction and oxidation, fitted-well with the experimental data.

URL: <http://www.sciencedirect.com/science/article/pii/S1385894713008280>

9. Bhutto, A. W., Bazmi, A. A., & Zahedi, G. (2013). Greener energy: Issues and challenges for Pakistan—wind power prospective. *Renewable and Sustainable Energy Reviews*, 20, 519-538.

Abstract:

Energy is one of the essential inputs for economic development and industrialization. A reliable supply of energy is essential to maintain and to improve human being's living conditions. The management of energy sources, rational utilization of energy, and renewable energy source usages are vital. Among the renewable energy sources wind energy is currently viewed as one of the most significant, fastest growing, and commercially attractive source to generate electrical energy because of the mature and cost effective energy conversation technology. Developing a utility-scale wind project is a complicated and time-consuming process which involves developers, landowners, utilities, the public and various local authorities. This article discusses the past, the present and the future of wind energy use in Pakistan. The efforts for the utilization of wind energy in the country are presented as well, along with barriers in its development. It is concluded that the potential exists, but significant efforts are needed to effectively make use of this cheap renewable energy source.

URL: <http://www.sciencedirect.com/science/article/pii/S136403211200706X>

10. Bhutto, A. W., Bazmi, A. A., & Zahedi, G. (2013). Underground coal gasification: from fundamentals to applications. *Progress in Energy and Combustion Science*, 39(1), 189-214.

Abstract:

Underground coal gasification (UCG) is a promising option for the future use of un-worked coal. UCG permits coal to be gasified in situ within the coal seam, via a matrix of wells. The coal is ignited and air is injected underground to sustain a fire, which is essentially used to “mine” the coal and produce a combustible synthetic gas which can be used for industrial heating, power generation or the manufacture of hydrogen, synthetic natural gas or diesel fuel. As compared with conventional mining and surface gasification, UCG promises lower capital/operating costs and also has other advantages, such as no human labor underground. In addition, UCG has the potential to be linked with carbon capture and sequestration. The increasing demand for energy, depletion of oil, and gas resources, and threat of global climate change have led to growing interest in UCG throughout the world. The potential for UCG to access low grade, inaccessible coal resources and convert them commercially and competitively into syngas is enormous, with potential applications in power, fuel, and chemical production. This article reviews the literature on UCG and research contributions are reported UCG with main emphasis given to the chemical and physical characteristic of feedstock, process chemistry, gasifier designs, and operating conditions. This is done to provide a general background and allow the reader to understand the influence of operating variables on UCG. Thermodynamic studies of UCG with emphasis on gasifier operation optimization based on thermodynamics, biomass gasification reaction engineering and particularly recently developed kinetic models, advantages and the technical challenges for UCG, and finally, the future prospects for UCG technology are also reviewed.

URL: <http://www.sciencedirect.com/science/article/pii/S0360128512000573>

11. de Clippel, F., Khan, A. L., Cano-Odena, A., Dusselier, M., Vanherck, K., Peng, L., ... & Sels, B. F. (2013). CO₂ reverse selective mixed matrix membranes for H₂ purification by incorporation of carbon–silica fillers. *Journal of Materials Chemistry A*, 1(3), 945-953.

Abstract:

By filling a PDMS top layer with porous carbon–silica microspheres, a defect-free mixed matrix membrane was created with notable CO₂ reverse selective separation properties. For the separation of CO₂ over H₂ at room temperature and 10 bar inlet pressure, these membranes demonstrate high CO₂ gas fluxes up to 3×10^{-7} mol cm⁻² s⁻¹, in combination with ideal separation factors in the range of 6 to 9. The present separation data signify an important step forward in the removal of CO₂ from H₂ using a reverse selective separation strategy. Moreover, they elucidate the potential of such mixed matrix membranes in the emerging field of CO₂ separation.

URL: <http://pubs.rsc.org/en/content/articlelanding/2013/ta/c2ta00098a/unauth#!divAbstract>

12. Khan, A. L., Klaysom, C., Gahlaut, A., & Vankelecom, I. F. (2013). Polysulfone acrylate membranes containing functionalized mesoporous MCM-41 for CO₂ separation. *Journal of Membrane Science*, 436, 145-153.

Abstract:

Mixed matrix membranes (MMMs) can potentially improve the separation performance of traditional polymeric membranes while still maintaining their processing advantages and lower costs. In this work, MMMs composed of acrylate derivatized polysulfone and functionalized mesoporous MCM-41 were prepared by solution casting. The voids at the polymer-filler interface were removed by the introduction of covalent linkages between the modified polymer and the functionalized fillers. Gas permeation results and SEM images of the synthesized MMMs confirmed a good adhesion and dispersion of the fillers within the polymer matrix. In comparison to MMMs with unmodified MCM-41, covalently linked MCM-41 fillers rendered the MMMs significantly higher CO₂/CH₄ and CO₂/N₂ selectivities due to the presence of a covalent link between the –NH₂ group of the filler and the acrylate of the polymer. The highest ideal selectivities obtained here for CO₂/N₂ and CO₂/CH₄ were 32.97 and 31.48 (CO₂ permeability=9.13 Barrer), respectively. Different operating temperatures were also studied and activation energies calculated.

URL: <http://www.sciencedirect.com/science/article/pii/S0376738813001427>

13. Xiu, Z. Y., Chen, G. Q., Wang, M., & Hussain, M. (2013). Effect of TiN coating on microstructure of Ti_f/Al composite. *Micron*, 45, 92-96.

Abstract:

In the present work, Ti fibre reinforced Al matrix composites (Ti_f/Al) were fabricated by pressure infiltration method. In order to suppress the severe Ti–Al reaction and reduce the formation of brittle TiAl₃ phase, a TiN layer was coated on Ti fibres by an arc ion plating method before composite preparation. A thin TiN layer was coated on the Ti fibre surface, and the maximum and minimum thickness values of layer were about 3.5 and 1 μm, respectively. Preferred orientation of TiN on (1 1 1) and (2 0 0) was found by XRD analysis. A thin and uniform TiAl₃ layer was observed in Ti_f/Al composite. However, after coated with TiN layer, no significant reaction layer was found in (Ti_f + TiN)/Al composite. Segregation of Mg element was found in Ti_f/Al composite, and the presence of TiN layer showed little effect on this behaviour. Due to the large CTE difference between Ti fibre and Al matrix, high density dislocations were observed in the Al matrix. Meanwhile, fine dispersed Mg₂Al₃ phases were also found in Al matrix. Ti fibre is mainly composed of α- and β-Ti. Small discontinuous needle-like TiAl₃ phases were detected at TiN/Al interface, which implies that the presence of TiN layer between the Ti fibre and Al matrix could effectively hinder the formation of TiAl₃ phases

URL: <http://www.sciencedirect.com/science/article/pii/S0968432812002533>

14. Hojniak, S. D., Khan, A. L., Hollóczy, O., Kirchner, B., Vankelecom, I. F., Dehaen, W., & Binnemans, K. (2013). Separation of Carbon Dioxide from Nitrogen or Methane by Supported Ionic Liquid Membranes (SILMs): Influence of the Cation Charge of the Ionic Liquid. *The Journal of Physical Chemistry B*, 117(48), 15131-15140.

Abstract:

Supported ionic liquid membranes (SILMs) are promising tools for the separation of carbon dioxide from other gases. In this paper, new imidazolium, pyrrolidinium, piperidinium, and morpholinium ionic liquids with a triethylene glycol side chain and tosylate anions, as well as their symmetrical dicationic analogues, have been synthesized and incorporated into SILMs. The selectivities for CO₂/N₂ and CO₂/CH₄ separations have been measured. The selectivities exhibited by the dicationic ionic liquids are up to two times higher than the values of the corresponding monocationic ionic liquids. Quantum chemical calculations have been used to investigate the difference in the interaction of carbon dioxide with monocationic and dicationic ionic liquids. The reason for the increased gas separation selectivity of the dicationic ionic liquids is two-fold: (1) a decrease in permeance of nitrogen and methane through the ionic liquid layer, presumably due to their less favorable interactions with the gases, while the permeance of carbon dioxide is reduced much less; (2) an increase in the number of interaction sites for the interactions with the quadrupolar carbon dioxide molecules in the dicationic ionic liquids, compared to the monocationic analogues.

URL: <http://pubs.acs.org/doi/abs/10.1021/jp409414t>

15. Tahir, M., & Amin, N. S. (2013). Advances in visible light responsive titanium oxide-based photocatalysts for CO₂ conversion to hydrocarbon fuels. *Energy Conversion and Management*, 76, 194-214.

Abstract:

Solar conversion of CO₂ to hydrocarbon fuels seems promising to reduce global warming for improved sustainability. Solar energy, as direct solar irradiations, is excessively available and it is imperious to utilize it for solar fuel production. This review paper is organized to discuss recent innovations and potential applications of phototechnology to recycle CO₂ via visible light responsive (VLR) TiO₂-based photocatalyst. In this perspective various enhancement methods such as doping with metals and non-metals and sensitization to expand TiO₂ band gap toward visible region are critically discussed. This review paper also presents applications of VLR photocatalysts, advances in photoreactors, and future prospects of VLR based technology for conversion of CO₂ to hydrocarbon fuels. The findings of this study revealed both metals and

non-metals could improve TiO₂ photoactivity, but non-metals and especially co-metals were more efficient. The combination of co-metals with sensitizers exhibited much higher CO, CH₄ and CH₃OH yield rates. Among photocatalytic reactors, optical fibers and monolith photoreactors are more efficient because of their efficient light harvesting potential. Although the progress in CO₂ reduction to fuels is encouraging, further considerations are required for commercialization purposes.

URL: <http://www.sciencedirect.com/science/article/pii/S0196890413004172>

16. Khan, A. L., Klaysom, C., Gahlaut, A., Khan, A. U. & Vankelecom, I. F. J. (2013). Mixed matrix membranes comprising of Matrimid and -SO₃H functionalized mesoporous MCM-41 for gas separation. *Journal Of Membrane Science*, 447, 73-79. (Abstract not found)

17. Riaz, A., Zahedi, G., & Klemeš, J. J. (2013). A review of cleaner production methods for the manufacture of methanol. *Journal of Cleaner Production*, 57, 19-37.

Abstract:

Growing population and expanding economies are important causes of increasing global energy demand. In wake of the continuous hike in the petroleum prices, depleting world resources and increased constant threat to planet's environment, the need for environment friendly alternative fuels has augmented many times. Methanol has been in the limelight over the past few years. High production cost, catalyst deactivation, economy of scale, huge energy requirements are the leading bottlenecks, which should be resolved to move towards the cleaner production. To address the issues, various reactors and their configurations have been modelled over years and the need to summarise all these efforts seems obligatory. One-dimensional to three-dimensional models for traditional packed bed reactors to processes for direct conversion of natural gas to methanol is available in literature. The presented study is an attempt to compile most of these efforts in order to guide future work in this area for cleaner and healthier environment.

URL: <http://www.sciencedirect.com/science/article/pii/S0959652613003983>

18. Hussain, M., Akhter, P., Russo, N., & Saracco, G. (2013). Novel Ti-KIT-6 material for the photocatalytic reduction of carbon dioxide to methane. *Catalysis Communications*, 36, 58-62.

Abstract:

Novel Ti-KIT-6 materials with different Si/Ti ratios (200, 100 and 50) have been synthesized, characterized and applied for the photocatalytic reduction of carbon dioxide to methane. An intermediate amount of Ti(Si/Ti = 100) was found to be isolated and uniformly distributed, without collapsing the KIT-6 structure. TiO₂ formation was observed due to a higher amount of

Ti(Si/Ti = 50). Overall, the Ti-KIT-6 (calcined) materials were superior in activity than the Ti-KIT-6 (dried) materials. Owing to the greater number of OH groups, the Si/Ti ratio of 100 showed a higher methane production rate and was found to be more reactive than commercial Degussa P25 TiO₂.

URL: <http://www.sciencedirect.com/science/article/pii/S1566736713000794>

19. Ghauri, M., Inayat, A., Bashir, M. T., Ali, S. B., & Cliffe, K. R. (2013). High Pressure Oxydesulphurisation of Coal—A Parametric Study. *Energies*, 6(4), 1930-1943.

Abstract:

The current study is focused on controlling sulphur emissions by pre-treating coal to remove sulphur prior to combustion using the oxydesulphurisation technique. Three British coals were chosen for the study. Working with these coals gave a better insight to the oxydesulphurisation reactions for pyritic and organic sulphur. Effect of air and oxygen pressure in a fixed time interval on sulphur removal was studied by series of experimental runs at various temperatures. Heating value recoveries were significant. Increase in oxygen content is reported as a measure of carbon loss. The coal samples were analyzed according to British standard methods. Experimental results demonstrate that the sulphur removal was enhanced with the increase in air pressure, particularly up to 100 bars, with only a small decrease in calorific value at a particular temperature. Increasing temperature was witnessed to be more important in sulphur removal than increasing pressure.

URL: <http://www.mdpi.com/1996-1073/6/4/1930>

20. Asghar, M. N., Shahzad, M. T., Nadeem, I., & Ashraf, C. M. (2013). Phytochemical and in vitro total antioxidant capacity analyses of peel extracts of different cultivars of *Cucumis melo* and *Citrullus lanatus*. *Pharmaceutical biology*, 51(2), 226-232.

Abstract:

Context: *Cucumis melo* Linn. (Cucurbitaceae) and *Citrullus lanatus* Thunb. (Cucurbitaceae) are desert vegetables popular for their nutritional value and year round availability. The pulp and seeds of these plants are used for dietary purposes or as medications for certain ailments in the folk medicinal system. Peels of the fruit are either wasted or used as feed of grazing animals.

Objective: A detailed investigation regarding the chemical constituents and antioxidative analyses of the peel extract of fully ripened fruits from different cultivars of the two vegetables was carried out here for the first time.

Materials and methods: Chemical constituents of the peel extracts of *C. melo* and *C. lanatus* cultivars in methanol, 1-butanol, chloroform and *n*-hexane were analysed by gas chromatography-mass spectrometry (GC-MS) and the antioxidative properties were evaluated using standard *in vitro* antioxidative assays.

Results: The results demonstrated large variation in the chemical constituents of the extracts including alkanes, saturated and unsaturated fatty acids and their esters, cyclic ketones, aldehydes, phenolic compounds and anthocyanin derivatives. Total phenolic content ranged from 2.96–0.85 mg/L gallic acid equivalents for different extracts.

Discussion and conclusion: Employing GC-MS analyses and standard *in vitro* antioxidative assays, the data presented here clearly demonstrate the potency of *C. melo* and *C. lanatus* extracts as antioxidant and radical scavenger plants which may be used as good sources of natural antioxidants. The peels of both the plants can be added to the diet at various stages to compensate food shortage and dietary deficiency problems of living beings.

URL: <http://informahealthcare.com/doi/abs/10.3109/13880209.2012.717228>

21. Saba, I., Iqbal, M. J & Iqbal, M. (2013). Bioactivity of Eucalyptus citriodora leaves essential oil. *Agrochimica*, 57(2), 125-134.

Abstract:

The essential oils and extracts from plants have gained popularity and scientific interests during last few years (Tepe et al., 2005). Diets rich in natural antioxidants are considered to reduce risk of incidence of cardiovascular, chronic diseases and certain types of can-cer (Hussain et al., 2008). Foods that combine nutritional and medicinal benefits are preferred as their use have shown synergistic effects, and most natural compounds extracted from plants have established biological activities. Among these various kinds of natural substances, essential oils from aromatic and medicinal plants gain particular attention as potential natural agents for food preservation (Mimica-Dukic et al., 2004). Essential oils are proved to have various pharmacological effects such as spasmolytic, carminative, hepatoprotective, antiviral and anti-carcinogenic effects (Mimica-Dukic et al., 2003; Bozin et al., 2006). Recently, essential oils have been qualified as natural antioxidants (Ruberto and Baratta, 2000) and are proposed as potential substitutes of synthetic antioxidants in various sectors of food industry. Oxidation of lipids which occurs during raw material storage, processing, heat treatment and further storage of final products is one of the basic reasons for the rancidity of food products and resultantly lead to food deterioration. Due to undesirable influences of oxidized lipids on the human organs, it seems to be essential to decrease contact with products of lipid oxidation in food (Karpinska et al., 2001). According to some toxicologists and nutritionists, the carcinogenicity of some synthetic antioxidants used in food processing such as butylated hydroxytoluene (BHT)

and butylated hydroxyanisole (BHA) have already been documented. The governmental authorities and consumers had shown high concern about

URL:http://www.researchgate.net/publication/264868532_Bioactivity_of_Eucalyptus_citriodora_leaves_essential_oil

DEPARTMENT OF COMPUTER SCIENCE

Journal Papers

1. Hussain, S. A., & Saeed, A. (2013). An Analysis of Simulators for Vehicular Ad hoc Networks. *World Applied Sciences Journal*, 23(8), 1044-1048.

Abstract:

Proper selection of a simulator for VANETs is a serious task. Due consideration has to be given to the requirements for modeling the behaviour of networking protocols and mobility of vehicles. Both macro and micro aspects are important for evaluation of the traffic behaviour. Macro aspects are road conditions and infrastructure, while micro aspects constitute individual behaviour such as driving speed etc. Simulation software tools for VANETs differ in their features and capabilities. This paper presents a comprehensive analysis of currently available networking and traffic simulators for VANETs including interaction between them. In particular it compares their software features, availability of different options, graphical user interface, ease of use, accuracy, enhancement capability etc. Different VANET simulators which are combination of the two simulators are also compared. This paper will help potential researchers in the field of VANETs in the selection of simulation software tools.

URL: [http://www.idosi.org/wasi/wasi23\(8\)13/8.pdf](http://www.idosi.org/wasi/wasi23(8)13/8.pdf)

2. Rasheed, A & Mirza, J. S (2013). Validation and data extraction of XML by Xquery. *World Applied Sciences Journal*. (Abstract not Found)
3. Samreen, S & Mirza, J. S (2013). Improving Processer Efficiency by pipelining, Cache, and Virtual Memory. *Research Journal of applied Science, engineering and Technology*. (Abstract not Found)
4. Naz, E., Ali, B., Naz, T., & Sadiq, A. (2013). Impact of ICT Solutions: Outsourcing on Organizations Performance in Telecom Sector. *Journal of Basic and Applied Scientific Research*. 3(5), 683-689. (Abstract not Found)
5. Sadiq, A., Ahmad, F., Naz, T., & Faisal, H. (2013). Formal Analysis and verification of Arrival Procedure for an Aircraft using Petri nets. *Journal of American Science*, 9(3). 221-228

Abstract:

Air Traffic Control (ATC) is safety critical real times service in Air Traffic Management (ATM) where system correctness is a major concern, and which requires high degree of confidence and targets zero failure rates to avoid loss of human lives and other disastrous (unfavorable) conditions. The ever increasing volume of air traffic may cause unwanted delays in the flight during the arrival procedure of the aircrafts. Hence, there is an absolute need to formally model and verify the arrival procedure of the aircrafts to avoid delays and to assure the controlled coordination between aircraft and air traffic controllers which are involved in this process. In this paper, we have modeled the arrival procedure of the aircraft using Petri nets which have been used traditionally as a rationale for formal specification and verification for such a safety critical systems. The proposed model assures how the behavior of acting objects affects the overall procedure of arrival management. Moreover, we have verified the proposed model using coverability tree as an analysis method that ensures the deadlock-freeness and reliability of the mechanism involved between the aircraft and the air traffic controllers (ramp controllers and ground controllers) for the arrival of the aircraft.

URL: http://www.jofamericanscience.org/journals/am-sci/am0903/030_16036am0903_221_228.pdf

6. Tahir, T., Jafar, A., Zaheer, S., Afzal, M. K., Ahmad, M., & Shafi, J. (2013). Understandability Assessment of Concrete and Parametric Test Cases with Respect to Time and Correctness Ratio Measures. *Journal of Basic and Applied Scientific Research*, 3(1). 918-926. (Abstract not Found)

7. Rizwan, S., Baig, R. R., & Niaz, H. (2013). Statistical Analysis of Food Supplements in School Going Children. *Journal of Basic and Applied Scientific Research*, 3(5). 745-757

Abstract:

The main objectives of the study were to determine the types of nutritional supplements consumed by school going children, to identify the reasons for consumption of nutritional supplements in aforementioned children including perceived benefits and to determine the relationship between the food supplements and academic record. The study population included 300 male and female students (47 were for pre-test) in Grade 1-7 from Private and Public schools and the students of 4 to 12 years age. A total of 300 semi-structured interviews (47 interviews were as pre-test) conducted. In this study, we took the students from a lower-middle and middle classes background (determined by the school Principal using parental income). Main steps of research methodology were pre-testing of the questionnaire and then noted the timings and gaps identified from the pre-testing and improved the questionnaire on the basis of the initial results. Next step was to take written permission from the school's principals and higher authority to conduct the aforesaid study. 58.2% students were using multi-vitamins especially in the form of milk and its products. Drinks from food supplements

were well-known among children, especially in school going children because of their good taste. Most of the school going children, 47.3% were taking food supplements for their better health and 23.3% students were using for their better performance in the class. As per advice of doctors, only 26.8% children were using them for protection from diseases. Proper diet and nutritional supplements may benefit children of all ages by boosting immunity and optimizing health. Weight status of most of school going children (271) was fallen into the normal range i.e. BMI (18.5-24.9) and only 45 students were overweight i.e. BMI (>25). Multi-vitamin and mineral supplements including calcium supplements were the most popular supplements consumed by children aged 4-12. This might be related to the nutrition knowledge of the public that children need good nutrition for growth and development. It was found that students who were taking regular food supplements were intelligent and their academic records mostly fall into 60% or above. Among them, 52.4% students got the marks in between (80-100) % and 42.1% fall into (60-80) %, while only 5.5% students were below average. 58.2% students were using multi-vitamins especially in the form of milk and its products. Most of the school going children were taking food supplements for their better health and some students were using for their better performance in the class. Multi-vitamin and mineral supplements including calcium supplements were the most popular supplements consumed by children aged 4-12.

URL: <http://www.ciitlahore.edu.pk/Papers/Abstracts/81-8588270364404050808.pdf>

8. Raza, M. H., & Raza, I. (2013). Technological Management and Modern Telecommunication Market Place. *World Applied Sciences Journal*, 21(11), 1651-1656.

Abstract:

The technology revolution lead by Internet and ever improving computing power has played pivotal role in justifying the sense of a global village perception. Managing and enabling technological growth is among the top priorities of the organizations today. To meet this priority, organizations must create reliable, secure and cost-effective infrastructures that enable business innovation. Technological management not only includes a pool of up-to-date and state-of-the-art tangible and intangible technological resources, but innovation adoptions, technological road mapping and forecasting with proper time lining are also key ingredients of technology management. Technology management demands a futuristic approach from the companies. The companies have to look forward towards the upcoming technologies that are in the research pipeline and have to strategize their business expansion plans in the light of these developments. Telecommunication sector has seen a boom world over as never seen before and South Asia is no exception in this telecommunication revolution. The infrastructural growth in many of the countries in South Asian region such as India and Pakistan has been iconic. The numbers of companies offering various services and the number of users subscribing to these

services have grown in a phenomenal way. This wave of telecommunication business development cannot be understood in isolation of the global telecommunication business trends. With the help of a case study of the business innovations in telecommunication sector, this paper examines the technology management aspects such as road mapping, forecasting and modernization. It is presented that the major telecommunication companies of the world entered late in businesses such as cellular phones, Voice over Internet Protocol (VoIP) and cable/broadband TV due to the poor technological road mapping and forecasting. The newer and smaller companies got the business advantages such as initial high rate of return and market share and led the major telecommunication companies due to aggressive technological forecasting. When major telecommunication companies such as Bell, BT and AT and T put limits on their research activities in the last two decades of the previous century, the telecommunication research was carried on by universities and smaller research companies. This resulted in the technology options (ready in a box) to be purchased by any entrepreneurship. This was a different situation from earlier part of the last century when the research and its fruit was limited to big telecommunication companies. Now it remains a matter of fast technological perception and innovation acceptance to be a successful product introducer and many of the young companies with limited resources took the edge over resourceful big telecommunication companies.

URL: [http://idosi.org/wasj/wasj21\(11\)13/14.pdf](http://idosi.org/wasj/wasj21(11)13/14.pdf)

9. Hussnain, M., Sharjeel, M., Chaudhry, S. R., Hussain, S. A., Raza, I., & Mirza, J. S. (2013). Investigating Multi-Topological ZigBee Based Wireless Sensor Network in Precision Agriculture. *Journal of Basics and Applied Scientific Research*. 3(2). 195-201. (Abstract not found)

10. Shafi, J., Jadoon, R. N., Ashraf, U., Hussain, S. A., Ahmad, M., & Tahir, T. (2013). An Alternate Encapsulation and Implementation of DCCP for Multimedia Applications. 3(1). 830-836. (Abstract not found)

11. Rasool, G., Ahmad, I., & Atif, M. (2013). A Comparative Study on Results of Design Patterns Recovery Tools. *World Applied Sciences Journal*, 28(9), 1316-1321.

Abstract:

Over the last one and half decade a large number of design pattern recovery techniques and tools are presented for recovering patterns from source code of legacy applications. The results presented and published by different tools are very diverse, susceptible and debatable. It is really very difficult for community to select an existing design pattern recovery tool for purpose of recovering patterns due to reliability of their results. There is an apparent need to evaluate and compare results of these tools and explore key factors which cause wide disparity in the

results. We present the comparative analysis on selected tools based on results rendered by different design pattern recovery tools. The common results extracted by different tools after manual verification will become benchmark for future.

URL: [http://idosi.org/wasj/wasj28\(9\)13/19.pdf](http://idosi.org/wasj/wasj28(9)13/19.pdf)

12. Hussain, S., Rasool, G., Atef, M., & Shahid, A. K. (2013). A Review of Approaches to Model Security into Software Systems. *Journal of Basic and Applied Scientific Research*, 3(4), 642-647. (Abstract not Found).

13. Rasool, G., & Akhtar, H. (2013). Discovering Variants of Design Patterns. *Journal of Basic and Applied Scientific Research*, 3(1), 139-147. (Abstract not Found).

14. Hussain, S., Rasool, G., Atef, M., & Shahid, A. K. (2013). FDMSWAP: Formal Development Methodology for Secure Web Applications. *Journal of Basic and Applied Scientific Research*, 3(3), 1123-1128. (Abstract not Found).

15. Hussain, S., Dunne, P., & Rasool, G. (2013). FDMSWAP Formal Specification of Security Properties using Z Notation. *Journal of Applied Sciences, Engineering and Technology*, 5(19), 4664-4670.

Abstract:

Software security is a challenging issue for distributed and open systems. Despite the importance of external protections of software systems, internal security has significant impact on the overall security of the software systems. In this study, internal security issues of software systems are addressed. Internal security of software systems is defined in terms of security properties: authentication, authorization, confidentiality, integrity, non-repudiation and resource availability. Internal security of software systems largely depends on the integration of these security properties into the software systems. A precise and unambiguous representation of these security properties is crucial for any successful secure system. Majority of the existing models are based on informal or semiformal approaches to model these security properties. But no model is based on formal methods. Therefore, in this study, a formal specification of these security properties is presented in Z notation because formal methods are the only way to specify system properties unambiguously, completely and precisely. The resulting models are then analyzed by using Z/EVES theorem prover. The formal specifications of these security properties are analyzed only for syntax checking, type checking and automatic proofs of models.

URL: <http://maxwellsci.com/print/rjaset/v5-4664-4670.pdf>

16. Naseera, M., & Qinh, S. Y. (2013). Supervised Nonlinear Dimensionality Reduction Based on Evolution Strategy. *Journal of Basic and Applied Scientific Research*, 3(4), 483-491. (Abstract not Found)

17. Ilyas, Q. M., Ahmed, I., & Alshamari, M. A. (2013). Gadget-Inspired Graphical User Interfaces. *Journal of Basic and Applied Scientific Research*, 3(12), 169-174. (Abstract not Found)

18. Rizwan, S., & Mirza, J. S. (2013). Graphical and Validation Process for University Fee Structure. *Journal of Basic and Applied Scientific Research*, 3(3), 698-717.

Abstract:

Manipulation of various species of OWL for ontology building and the validation of ontology results using the SPARQL for dynamic structures are the important tasks in web semantics. Direct growth for semantic modeling case supports to RDF, RDFS, RDF PLUS and OWL, for that purpose ontology development is done after schema building. The inter relationship between different components, makes classes, sub classes, individuals, properties and association between them. We have modeled an ontology containing fee structure of COMSATS. In this ontology we have identified various classes, properties, individuals and forms, and then generate graphs that show the relationship between the different components of schema generation. Graphs are the ontology key representation that identifies the value-able information via visual effects. For the validation process in dynamic structure, query using SPARQL will show the results that fetch out from the semantic ontology. Developed ontology is used to answer queries of students i.e. provide me "Registration Charges" of BSCS (Bachelor of Sciences in Computer Science) program of Semester 1 in Islamabad Campus or what are pre requisites of MSTE (Masters of Sciences in Telecommunication Engineering) program in Lahore Campus or what are the credit hours of MCS (Masters of Computer Science) in Abbotabad Campus and Attock Campus etc. Results are compiled and assessed correctly by SPARQL query that will work with RDF/OWL.

URL: <http://www.ciitlahore.edu.pk/Papers/Abstracts/81-8588270367399988308.pdf>

19. Hussain, S. A., Saeed, A., & Chaudhary, S. U. (2013). A Dynamically Controlled Broadcasting Scheme for VANETs in Dense Traffic Environments. *SmartCR*, 3(6), 405-415.

Abstract:

Several vehicular applications involve broadcast communications where all vehicles in a certain area of interest are the intended receivers. In cities, three traffic profiles define dense, sparse and normal traffic densities. The dense traffic profile sets in at a signal crossing or when vehicle velocities are low. In this situation, at one stage, vehicles rebroadcast messages to each other, consuming the available bandwidth. Such a condition is known as a broadcast storm. This article presents two controlled broadcast schemes called master-slave, and token ring for dense traffic situations in urban environments. We then present a scheme that dynamically switches between the master-slave and token ring schemes when performance of the system degrades. Simulation results show that dynamic switching improves performance in dense traffic situations

URL: <http://www.dbpia.co.kr/Journal/ArticleDetail/3495540>

20. Hussain, S. A., Saeed, A., & Chaudhary, S. U. (2013). Admissible curvature continuous areas for fair curves using G2 Hermite PH quintic polynomial. *Journal of King Saud University - Computer and Information Sciences*, 3(6), 405-415.

Abstract:

In this paper we derive admissible curvature continuous areas for monotonically increasing curvature continuous smooth curve by using a single Pythagorean hodograph (PH) quintic polynomial of G2 contact matching Hermite end conditions. Curves with monotonically increasing or decreasing curvatures are considered highly smooth (fair) and are very useful in geometric design. Making design by using smooth curves is a fascinating problem of computing with significant physical and aesthetic applications especially in high speed transportation and robotics. First we derive sufficient conditions for curvature continuity on a single PH quintic polynomial with given Hermite end conditions then we find the admissible area for the smooth curve with respect to the curvatures at its endpoints.

URL: <http://www.ciitlahore.edu.pk/Papers/Abstracts/518-8588137404084572058.pdf>

21. Afzal, H., Naz, T & Sadiq, S. (2013). A Survey of Automatic Mapping of Ontology to Relational Database Schema. *Research Journal of Recent Sciences*, (Abstract not Found)

22. Shujah, M., Naz, T & Sadiq, S. (2013). Approaches for Loss-less Mapping from Relational Database to OWL Ontologies. *Research Journal of Recent Sciences*, (Abstract not found)

23. Habib, Z., & Sakai, M. (2013). Fairing an arc spline and designing with G 2 PH quintic spiral transitions. *International Journal of Computer Mathematics*, 90(5), 1023-1039. **Abstract:**

This paper describes a method to smooth an arc spline. Arc splines are G^1 continuous segments made of circular arcs and straight lines. We have proposed a smooth version of the arc spline by replacing its parts with C-, S-, and J-shaped spiral transitions, stitched with G^2 continuity, by using a *single* segment of Pythagorean hodograph quintic function. Use of a *single* polynomial function rather than two has the benefit that designers have fewer entities to deal with. Spiral transitions are important in manufacturing industries because of their use in the cutting paths for numerically controlled cutting machinery, highway or railway designing, non-holonomic robot path planning and spur gear designing.

URL: http://www.tandfonline.com/doi/abs/10.1080/.VA_sl0ekqSQ

DEPARTMENT OF ELECTRICAL ENGINEERING

Journal Papers

1. Masood, B., Baig, S., & Raza, A. U. R. (2013). Opportunities and Challenges of ICT in AMI. *World Applied Sciences Journal*, 21(3). 435-443.

Abstract:

History has proved that there has not been a reasonable up gradation in the power grid of 20th century and the current electric power network is ill-suited for 21st century. An efficient, reliable and secure delivery of energy to the consumer is required in a modern power grid infrastructure. Especially for the countries like Pakistan, where energy crisis is severe, modern power infrastructure can contribute in presenting a solution of the crisis. According to a report generated by Asian Development Bank, Pakistan is facing the transmission and distribution losses of up to 24.3%. A major flaw of the present power grid infrastructure is the lack of information and communication technologies (ICT) and load management system. The challenges being faced by existing power grid can be addressed with the introduction of new emerging smart grid technologies. Smart grid technologies facilitates the power grid with efficient sensing, faults detection, automatic meter reading, modern information and communication technology, proper energy management systems based on customer's demand and supply optimization, resilience, self-healing and sustainability. This paper overviews the issues in implementation of the information and communication technologies. It also highlights the challenges like different time spans in meter data collection and management, safe and secure communications at the deployment level, etc.

URL: <http://connection.ebscohost.com/c/articles/88947412/opportunities-challenges-ict-ami>

2. Masood, B., Din, F. U., & Baig, S. (2013). Role of Narrow-Band Low Data Rate Power Line Communication in Smart Grids and Noise Reduction Strategy. *World Applied Sciences Journal*, 26(12), 1595-1601.

Abstract:

An effective design of Smart Grid (SG) must include robust combined sensing, efficient Communication and elegant control system, so a vigorous network is the core requirement of a Smart Grid keeping in view the concepts of sensor networks and electrical and topological properties of distribution system. Two-way communication is the most effective way of transceiving the data on both sides; towards Low Voltage (LV) side and towards Medium

Voltage (MV) side, which is the basic property of a Smart Grid and has gained higher attraction of the utility companies. The paper enlightens the service of a SG as a communication infrastructure, linking smart meters through the Power Line Communication (PLC) network. PLC's are evolving as an appropriate medium for signal and information communication within Smart Grid application, especially for Advance Metering Infrastructure (AMI) and Home Area Network (HAN). Smart Meters and PLC's increase the strength of a Smart Grid as by providing robust two-way communication. For noise reduction this paper elaborates the clipping strategy and the use of equalizer which can reduce the effect of noise and attenuation in the channel signals in PLC's. Clipping is cutting of the amplitude of the received signal up till a predefined threshold value without changing the phase in order to reduce noise effects.

URL: [http://idosi.org/wasj/wasj26\(12\)13/12.pdf](http://idosi.org/wasj/wasj26(12)13/12.pdf)

3. Khan, A., & Baig, S & Naz. T (2013). DWMT transceiver equalization using overlap FDE for downlink ADSL. *Turkish Journal of Electrical Engineering & Computer Sciences*, 26(12), 1595-1601.

Abstract:

Discrete Wavelet Multi-tone (DWMT) modulation technique is a wavelet transform based technique implemented using perfect reconstruction filter banks. It has been recently proposed for various wireline channels such as digital subscriber loops (DSL) as a solution to the problems posed by discrete multi-tone (DMT) transceiver including inter block interference (IBI), lower spectral efficiency due to the employment of cyclic prefix (CP) in guard interval (GI) for DMT symbols. The greater side lobe attenuation offered by wavelet filter banks results in improved spectral containment and lower IBI in DWMT transceivers. However, no standard equalization technique exists for a DWMT based transceiver so as to remove the effect of channel on the transmitted signal in DWMT systems. This paper proposes the application of overlap frequency domain equalization (OFDE) in DWMT modulated systems and compares the bit error rate (BER) performance with time domain equalization (TDE) technique. It is shown through simulation results that minimum mean square error (MMSE) based Overlap FDE technique can be applied as an equalization technique for downlink asymmetric DSL (ADSL) channel with lower computational complexity and BER performance comparable to that of TDE.

URL: <https://www.google.com.pk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CBsQFjAA&url=http%3A%2F%2Fonline.journals.tubitak.gov.tr%2FopenAcceptedDocument.htm%3FfileID%3D290548%26no%3D61564&ei=KO8PVP3qL8nnaKvegYgK&usg=AFQjCNH6vsDM6zml2ERaAwa4gMhRjNksWQ>

4. Farooq-i-Azam, M., Ayyaz, M. N & Akthar. S (2013). Connectivity Based Technique for Localization of Nodes in Wireless Sensor Networks. *Przegląd Elektrotechniczny*. 171-175.

Abstract:

We propose a localization algorithm for wireless sensor networks, which is simple in design, does not involve significant overhead and yet provides acceptable position estimates of sensor nodes. The algorithm uses settled nodes as beacon nodes so as to increase the number of beacon nodes. The algorithm is range free and does not need any additional piece of hardware for ranging. It also does not involve any significant communication overhead for localization. The simulation and results show that good localization accuracy is achieved for outdoor environments.

URL:<http://yadda.icm.edu.pl/baztech/element/bwmeta1.element.baztech-054e912e-2446-4f4b-8648-ecd72dcd1338>

5. Ejaz, A., Akthar. S & Nadeem, M (2013). Efficient Direct Manual Computation Of Discrete Fourier Transform In Time Domain. *Sci.Int(Lahore)*,25(4),719-722

Abstract:

Digital Signal Processing (DSP) is an important and integral component of Wireless Communications, Speech, Image and Video Processing in particular and of Electrical Engineering in general. With the advancement in integrated technology, sophisticated algorithms have been designed and implemented on the machines to achieve the results of many complex problems related to real world phenomena. In this paper, we thus propose an algorithm which facilitates the instructors teaching DSP course in class to do manual computation of N-point discrete Fourier transform (DFT) and inverse discrete Fourier transform (IDFT) of a complex data signal, $x[n]$ with ease in time domain. We show in our analysis and through numerical results that our proposed algorithm is more efficient than the direct computation of N-point DFT and IDFT of $x[n]$. It further provides 50 percent saving in terms of real additions (RAs), real multiplications (RMs) and real arithmetic operations (RAops) using our proposed algorithm in comparison with the direct computation of N-point DFT and IDFT of $x[n]$ for large N preferably ($N \geq 1000$). Moreover, for real data, our percentage saving in the form of real arithmetic operations remains unchanged even if we compute its N-point DFT and IDFT using the proposed algorithm.

URL:http://www.sci-int.com/pdf/2460268688--719-722--Ejaz-Ansari_Paper1alley_%20Final%20Proof.pdf

6. Ansari, E. A., Akhtar, S., Nadeem, M., & Humayun, T. (2013). Processing Of Auto And Cross-Correlations Of Two Jointly Wss Random Processes Through Various Types Of Windows In Time Domain. *Science International*, 25(4).757-761

Abstract:

In many situations, transform techniques are quite useful for analyzing the wide sense stationary (WSS) processes through LTI- systems. However, if the input process is not a stationary white noise and is further passed through a(n) exponential, rectangular, triangular and trapezoidal shaped window, then, it becomes difficult to compute auto-correlation and cross-correlation of the output process using transform techniques. Thus, in this paper, we present a very simple and efficient technique in time domain for the computation of auto and cross correlations of the output WSS process through the above windows. First, we develop the relationship of auto and cross correlation of the output signal in terms of auto-correlation of the input deterministic signal and the impulse response of the filter without using the integral definition of the convolution explicitly. Then, we repeat the analysis in terms of two jointly WSS processes, $X(t)$ and $Y(t)$ denote input and output process respectively. Subsequently, we apply these results and derive the algorithm first for an exponential shaped window and further use it intelligently while processing $X(t)$ through a rectangular (also known as moving average), triangular and trapezoidal shaped windows. Furthermore, we validate our proposed method in case of a rectangular / moving average window through comparison with the results already reported in the literature. Finally, our proposed technique in time domain can easily be extended to discrete-time signals and discrete-time WSS random processes.

URL: http://www.sci-int.com/pdf/30101908716-757-760-Ansari_Paper-COMSAT-12-8-13.pdf

7. Mahmood, H., Akhtar, S., Ansari, E. A., & Nadeem, M. (2013). Investigating The Performance Of Scheduling Schemes In Hsdpa System. *Science International*, 25(3). 589-594

Abstract:

This paper focuses on evaluating the performance of scheduling schemes in high speed downlink packet access (HSDPA) system. The investigation is performed with the aid of system level simulator developed for this purpose. The investigation focuses on four scheduling schemes namely Maximum C/I, Proportional Fair, Fair Throughput and Round Robin. The investigation is performed and evaluated in terms of service throughput, and fairness at network level. Moreover, the investigation is also performed over the user level in terms of user average throughput, retransmissions percentage and SPDU transfer delay

URL: [http://www.sci-int.com/pdf/43397390628-589-594-Ansari_Paper\[1\]%20Ejaz%20Ansari-COMSAT-Lahore%2025-3-13.pdf](http://www.sci-int.com/pdf/43397390628-589-594-Ansari_Paper[1]%20Ejaz%20Ansari-COMSAT-Lahore%2025-3-13.pdf)

8. Ilyas, A., Ansari, E. A., & Akhtar, S. (2013). Accurate Ber/Ser Analysis And Performance Of Different Modulation Schemes Over Wireless Fading Channels. *Science International*, 25(2). 367-374

Abstract:

This paper derives accurate analytical expressions for bit-error (BER) and symbol-error (SER) rate of different modulation schemes such as binary phase shift keying (B-PSK), binary frequency shift keying (B-FSK), quadrature phase shift keying (Q-PSK), 8-phase shift keying (8-PSK) and 16-quadrature amplitude modulation (16-QAM) over Nakagami-m fading channels respectively. These analytical expressions are extremely useful for evaluating the system's performance without carrying out time consuming simulations. Subsequently, we verify our derived closed form expressions for Rayleigh fading channels by setting the value of Nakagami fading parameter, m equal to 1. We further validate our derived theoretical results by performing Monte Carlo Simulations of the System Model. The performances of different modulation schemes under Nakagami-m fading channels are analyzed using the average bit / symbol error probability. Furthermore, we also make the performance comparison of modulation schemes under Nakagami-m fading channel with other fading channels such as Rician and Rayleigh and show that the performance of the system is better in case of Nakagami-m fading channels as compared to other fading channels.

URL: [http://www.sci-int.com/pdf/121614166435-367-374--Final%20BER%20Analysis%20and%20Performance%20over%20Wireless%20Fading%20Channels\[1\]%20Abasi.pdf](http://www.sci-int.com/pdf/121614166435-367-374--Final%20BER%20Analysis%20and%20Performance%20over%20Wireless%20Fading%20Channels[1]%20Abasi.pdf)

9. Khan, A. N., Arshad, T., Anwar, W., & Munir, E. U. (2013). Intra-Cluster Multihop Routing in LEACH Based on Shortest Distance. *Journal of Basic and Applied Scientific Research*, 3(11). 280-288 (Abstract not Found)

10. Khan, A. N., Anwer, W., Munir, E. U., Farooqi, U., Khaliq, A., Malik, A., & Aizaz, M. (2013). Handover Techniques in Mobile WiMAX Networks: Analysis and Comparison. *Middle-East Journal of Scientific Research*, 15(11), 1599-1605.

Abstract:

Mobile WiMAX, in the past few years has become one of the most important technologies because it has the ability to provide users with a high speed wireless connection in a Metropolitan Area Network. Mobility brings with it the need of handovers which occur when a user moves from one cell to the other. Handover is considered as a highly important issue in mobile WiMAX. This paper discusses the conventional handover procedure along with some of the techniques that deal with handover and latency reduction. These include cross layer handover technique, latency reduction in handover using mobility pattern and other MAC layer handover algorithms.

URL: [http://www.idosi.org/mejsr/mejsr15\(11\)13/17.pdf](http://www.idosi.org/mejsr/mejsr15(11)13/17.pdf)

11. Afsar, K., Khan, A. N., Anwar, M. W., Munir, E. U., & Akhtar, M. (2013). Weighted Energy Efficient Clustering Hierarchy for Multi-hop Communication in Wireless Sensor Networks. (Abstract not Found)
12. Asif, H. M., Zeng, Y., Honary, B., & Ahmed, H. (2013). Ray Tracing Based MIMO Channel Modelling for Rate-Compatible Low-Density Parity-Check Codes for WiMedia UWB. *The Arabian Journal for Science and Engineering*. 38(9). 2315-2325. (Abstract not Found)
13. Muni, E. U., Ijaz, S., Anjum, S., Khan, A. N., Anwar, W & Nisar, W. (2013). Novel Approaches for Scheduling Task Graphs in Heterogeneous Distributed Computing Environment. *The Arabian Journal for Science and Engineering*. (Abstract not Found)
14. Rafiq, A., Anjum, S., Rehan, M., Khan, A. N., Anwar, W & Muni, E. U (2013). Evaluating TCP Performance over Different Variants of 802.11 While Executing Handover. *Research journal of Applied Sciences, Engineering and Technology*. (Abstract not Found)
15. Rafiq, A., Khan, A. N., Nisar, W., Anjum, S., Anwar, W & Muni, E. U. (2013). Impact of Carrier Sense Threshold on Reactive Routing Protocols in a Course of Handover. *Research journal of Applied Sciences, Engineering and Technology*. (Abstract not Found)
16. Abd-ur-Rehman Raza, M. J., Ghauri, M., & Sarwar, A. (2013). Predicting State-Variables of Organic Rankine Cycle by a Generalized Mathematical Model. *World Applied Sciences Journal*, 24(1), 35-38.

Abstract:

The paper deals with the study of a control strategy for a generalized thermodynamic ORC power plant utilizing waste heat by using dynamic modelling technique. As Organic Rankine Cycle (ORC) is generalized proposed predictive control technique is used for predicting the efficiency of low quality heat recovery process operating on an Organic Rankine Cycle to obtain the optimal system performance as presented in this paper. The first order mathematical modelling has been proposed to obtain the equilibrium point, taking into account the ambient condition developed through the nonlinear behavior of the plant. The balancing condition of the system has been analyzed through linear model evaluation of the manipulated variable to reach the desired setpoint in order to balance the system.

URL: [http://www.idosi.org/wasj/wasj24\(1\)13/6.pdf](http://www.idosi.org/wasj/wasj24(1)13/6.pdf)

17. Jaffery, M. H., Ghauri, M., & Saleem, Y. (2013). Comparison Of Computationally Efficient Linear Mpc Algorithms With Pid On Trajectory Control Of Quadrotor Helicopter. *Science International*, 25(4). 777-783.

Abstract:

This paper presents the implementation of variants of Model predictive control (MPC) algorithms on a Quad rotor helicopter. The major obstacle in the implementation of constrained MPC is the expedient solution of the optimization problem. The novel contribution is the comparison of the performance and online computation time of variants of MPC including GPC, nominally stable (closed loop paradigm, dual-mode) MPC and Laguerre function based MPC and a PID controller in simulation for the trajectory control of a Quadrotor helicopter.

URL: <http://www.sci-int.com/pdf/10081981520%20777-783---Ghauri-COMSAT-Lahore.pdf>

18. Jaffery, M. H., Shead, L., Forshaw, J. L., & Lappas, V. J. (2013). Experimental quadrotor flight performance using computationally efficient and recursively feasible linear model predictive control. *International Journal of Control*, 86(12), 2189-2202.

Abstract:

A new linear model predictive control (MPC) algorithm in a state-space framework is presented based on the fusion of two past MPC control laws: steady-state optimal MPC (SSOMPC) and Laguerre optimal MPC (LOMPC). The new controller, SSLOMPC, is demonstrated to have improved feasibility, tracking performance and computation time than its predecessors. This is verified in both simulation and practical experimentation on a quadrotor unmanned air vehicle in an indoor motion-capture testbed. The performance of the control law is experimentally compared with proportional-integral-derivative (PID) and linear quadratic regulator (LQR) controllers in an unconstrained square manoeuvre. The use of soft control output and hard control input constraints is also examined in single and dual constrained manoeuvres.

URL: <http://www.tandfonline.com/doi/abs/10.1080/VBAFXUekqSQ>

19. Kazi, S., Saleem, Y., Jaffery, M. H., Sher, H. M. F & Iqbal, M. M. (2013). Speech Text Synthesis: Variations of Pitch and Duration Investigation Using MATLAB. *Sci.Int.(Lahore)*,25(3),483-486.

Abstract:

In this paper work on speech processing is presented in two different parts. First part is on speech synthesis using KLATT synthesizer (4) which is software for a cascade/parallel formant synthesizer. In KLATT synthesizer, formant values are placed that are extracted here using WAVESURFER (6), software, and a speech is produced by putting values of these extracted formants that is then compared with the original signal for analysis. Here actually we want to synthesize text to speech using KLATT synthesizer. Different sounds ba, bi, da, di, ga and giare

recorded in the PRAAT (7) and then open in the WAVE SURFER and manually formants are calculated. In second part of this paper, we record a vowel and calculate total duration of the speech by using MATLAB from length of the speech and sampling rate then extract the samples for 50ms duration to calculate the pitch period. We can manually mark the pitch periods to calculate the pitch of speech signal. By using MATLAB vary the pitch, increase or decrease, and vary duration of speech signal and construct a new.

URL: <http://www.sci-int.com/pdf/145636087612--483-486-Suhail%20Kazi%20composed%20paid%2025-3-13%20REF-not%20in%20the%20text.pdf>

20. Masood, K., Zafar, J., Zafar, T., & Zafar, H. (2013). Assessment of the occupational radiation exposure doses to workers at INMOL Pakistan (2007–11). *Radiation protection dosimetry*, 155(1), 110-114.

Abstract:

The assessment of occupationally exposed medical radiation workers at the Institute of Nuclear Medicine and Oncology (INMOL), Pakistan has been performed. The whole-body radiation exposure doses of 120 workers in nuclear medicine (NM), radiotherapy (RT) and diagnostic radiology (DR) were measured by using the film badge dosimetry technique for the time interval (2007–11) and their results presented. The annual average effective doses in NM, RT and DR were found to be well below the permissible annual limit of 20 mSv (averaged over a period of 5 consecutive y). The declining trend observed in the annual average dose values during the time interval (2007–11) is an indication of ameliorated radiation protection practices at INMOL, Pakistan.

URL: <http://rpd.oxfordjournals.org/content/155/1/110.short>

21. Sarfraz, M. S., Shahzad, A., Elahi, M. A., Fraz, M., Zafar, I., & Edirisinghe, E. A. (2013). Real-time automatic license plate recognition for CCTV forensic applications. *Journal of real-time image processing*, 8(3), 285-295.

Abstract:

We propose an efficient real-time automatic license plate recognition (ALPR) framework, particularly designed to work on CCTV video footage obtained from cameras that are not dedicated to the use in ALPR. At present, in license plate detection, tracking and recognition are reasonably well-tackled problems with many successful commercial solutions being available. However, the existing ALPR algorithms are based on the assumption that the input video will be obtained via a dedicated, high-resolution, high-speed camera and is/or supported by a controlled capture environment, with appropriate camera height, focus, exposure/shutter speed and lighting settings. However, typical video forensic applications may require searching

for a vehicle having a particular number plate on noisy CCTV video footage obtained via non-dedicated, medium-to-low resolution cameras, working under poor illumination conditions. ALPR in such video content faces severe challenges in license plate localization, tracking and recognition stages. This paper proposes a novel approach for efficient localization of license plates in video sequence and the use of a revised version of an existing technique for tracking and recognition. A special feature of the proposed approach is that it is intelligent enough to automatically adjust for varying camera distances and diverse lighting conditions, a requirement for a video forensic tool that may operate on videos obtained by a diverse set of unspecified, distributed CCTV cameras.

URL: <http://link.springer.com/article/10.1007/s11554-011-0232-7>

22. Hasani, B., Zafar, S., Akbar, A. H., & Magsi, B. A. (2013). Collaborative routing and data delivery architecture for commercial wireless sensor networks. *EURASIP Journal on Wireless Communications and Networking*, 2013(1), 1-18.

Abstract:

Lately, wireless sensor network applications have emerged for provision of commercial services to end users. This results in commercial deployment of sensor networks which is as an important research area due to a number of design and quality of service challenges. An important technical challenge for sensor service provision to end users is managing dynamic network conditions such as unreliability of sensor nodes and network links which results in frequent service outages. This research is aimed at addressing this challenge. It presents a novel architecture which utilizes the availability of multiple sensor networks under different administrative domains, deployed in an area such that maximum network connectivity and high service availability are ensured. The architecture incorporates modifications and enhancements at the medium access control and the routing layers of sensor nodes for the collaborative operation of sensor networks. The design is based on IEEE 802.15.4 standard and ad hoc on demand distance vector routing protocol. The proposed architecture is mathematically analyzed with regards to overheads associated with the design such as routing and communication, and techniques to minimize these overheads are recommended. Through simulations using OMNET++, we show that the proposed architecture effectively provides connectivity for disconnected nodes achieving an overall increase in throughput for all the cooperating networks.

URL: <http://link.springer.com/article/10.1186/1687-1499-2013-54>

DEPARTMENT OF HUMANITIES

Journal Papers

1. Waseem, F. (2013). The Theme of Universality in the English Literary Text and Criticism. *International Journal of Humanities and Social Sciences*. 3 (20)

Abstract:

This review paper aims to sensitize teachers and educationists about the theme of universality which is present in the English teaching texts and criticism. The metanarratives of English language and the canonical literary texts carry the universalist theme and can have hegemonic effects on non native learners' identity and subjectivity. The unicentricism and positivism of the universalist theme can be deconstructed to expose the opposite perspective through a critical pedagogy.

URL: http://www.ijhssnet.com/journals/Vol_3_No_20_December_2013/29.pdf

2. Jibeen, T. (2013). Frustration Intolerance Beliefs as Predictors of Emotional Problems in University Undergraduates. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, 31(1), 16-26.

Abstract:

The present study examined the relationship between Frustration Intolerance Beliefs as suggested by the Rational Emotive Behavior Therapy framework and emotional problems. Data were collected from 332 university undergraduate students (age 19–26) who completed Demographic Information Sheet, Frustration Discomfort Scale and three subscales of Brief Symptom Inventory including depression, anxiety and hostility. The current findings confirmed the association between frustration intolerance and irrational beliefs and their respective roles in psychological distress among non-clinical student population. Results indicated that FDS subscales were differently related to specific emotions as entitlement and emotional intolerance sub-scales were significantly positively associated with depression, anxiety, and hostility while achievement was significantly negatively associated with hostility. The study has implications for counsellors, school psychologists and policy makers as it highlights the importance of rational group and individual counselling of rational ideas to reduce the emotional problems of students hindering their educational and personal growth.

URL: <http://link.springer.com/article/10.1007/s10942-012-0154-8>

3. Aziz, S., Shamim, M., Aziz, M .F & Avais, P. (2013). The Impact of Texting/SMS Language on Academic Writing of Students- What do we need to panic about? *Et al. / Elixir Ling. & Trans.* 55 (2013) 12884-12890

Abstract:

The growing concern about the profuse use of texting endangering the standard forms in language prompted the present research to determine the presence or absence of SMS features in the academic writing of the participants. Triangulation was used for data collection i.e. questionnaires for learners and educators and samples of the learners' English written work were examined for SMS features. Suppliance in Obligatory Context was used for data recording. Simple average and ratio were used for descriptive analysis of the data. Contrary to the expectation, there were no significant evidences of these features in the sample. It seems being proficient in standard forms, these learners are context conscious and can switch to the appropriate register or style when writing formally. Thus the present study has de mystified the popular belief about texting adversely affecting writing and thus destroying Standard English. Moreover, the evidences of one punctuation mark used in place of another indicate there can be other factors like carelessness or lack of knowledge of students and the lack of training, feedback or emphasis by educators or the system. So the matter of concern should be the general neglect of punctuation even out of the context of texting.

URL: [http://www.elixirpublishers.com/articles/1360068938_55%20\(2013\)%2012884-12890.pdf](http://www.elixirpublishers.com/articles/1360068938_55%20(2013)%2012884-12890.pdf)

4. Waseem, F & Jibeen, T. (2013). Anxiety amongst Learners of English as a Second Language: An Examination of Motivational Patterns in the Pakistani Context. International Journal of Humanities and Social Science. (3) 16, 174-184

Abstract:

The study examines the interrelatedness of the two affective factors of anxiety and motivation in English learning of Pakistani university students, in the context of its being the official language and an economic guarantor. Based on two scales of motivation and anxiety, data from 170 male and female undergraduates, aged between 19-20 years, studying in COMSATS, where English is the medium of instruction, the study revealed that instrumental motivation is a significant contributor towards second language anxiety, including fear of negative evaluation, speech apprehension, fear of tests and anxiety of English classes, whereas integrative motivation only contributed towards fear of negative evaluation. The study replicates previous research in revealing that there is more instrumental motivation than integrative motivation in learners in situations where English is a prerequisite for progress and economic benefits. The study points out future directions for educators, researchers, language planners and policy makers.

URL: http://www.ijhssnet.com/journals/Vol_3_No_16_Special_Issue_August_2013/20.pdf

5. Hasan, S & Khan, H.(2013). Attention Deficit Hyperactivity and executive functions of children with normal Intelligence. Pakistan Journal of Clinical Psychology. (Abstract not Found)

DEPARTMENT OF IRCBM

Journal Papers

1. Younas, B., Khan, A. S., Muzaffar, D., Hussain, I., Anwar Chaudhry, A., & Ur Rehman, I. (2013). In situ reaction kinetic analysis of dental restorative materials. *The European Physical Journal Applied Physics*, 64(03), 30701.

Abstract:

The objective of this study was to evaluate in situ structural and thermal changes of dental restorative materials at periodical time intervals. The commercial materials included zinc oxide eugenol (ZOE), zinc phosphate type I (ZnPO_4), glass ionomer cement type II (GIC) and resin-based nano-composite (Filtek Z350 XT). These materials were processed according to manufacturer's instructions. For the structural analysis Fourier transform infrared spectroscopy (FTIR) was used at high resolution. TGA was used to evaluate thermal weight-loss. The FTIR spectra were collected at periodic time intervals. FTIR spectra showed that with time passing all materials exhibited an increase in peak intensities and a new appearance of shoulders and shifting of peaks for example, ZnPO_4 (P-O), ZOE (C=O, C=N, C-O-C), GIC (COO^- , C-H, Si-OH), composites (C=O, C=C, C=N, C-N-H). The peaks were replaced by bands and these bands became broader with time interval. Composites showed a degree of conversion and new peaks corresponded to the cross-linking of polymer composites. TGA analysis showed that significant changes in weight loss of set materials were observed after 24 h, where ZOE showed continuous changes in thermal degradation. The spectral changes and thermal degradation with time interval elucidated in situ setting behaviour and understanding of their bonding compatibility with tooth structure and change in relation to time.

URL:<http://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=9127554&fileId=S1286004213403610>

2. al-Rashida, M., Raza, R., Abbas, G., Shah, M. S., Kostakis, G. E., Lecka, J., ... & Iqbal, J. (2013). Identification of novel chromone based sulfonamides as highly potent and selective inhibitors of alkaline phosphatases. *European journal of medicinal chemistry*, 66, 438-449.

Abstract:

A new series of structurally diverse chromone containing sulfonamides has been developed. Crystal structures of three representative compounds (**2a**, **3a** and **4a**) in the series are reported. All compounds were screened for their inhibitory potential against alkaline phosphatases (ALPs). Two main classes of ALP isozymes were selected for this study, the tissue non-specific

alkaline phosphatase (TNALP) from bovine and porcine source and the tissue-specific intestinal alkaline phosphatases (IALPs) from bovine source. All sulfonamide compounds had a marked preference for IALP (K_i , up to $0.01 \pm 0.001 \mu\text{M}$) over TNALPs. Kinetics studies of the compounds showed competitive mode of inhibition. Molecular docking studies were carried out in order to characterize the selective inhibition of the compounds. An additional interesting aspect of these chromone sulfonamides is their inhibitory activity against ecto-5' - nucleotidase enzyme.

URL: <http://www.sciencedirect.com/science/article/pii/S0223523413003838>

3. Naqvi, S. A. R., Khan, Z. A., Nagra, S. A., Yar, M., Sherazi, T. A., Shahzad, S. A., ... & Mather, S. J. (2013). Novel indium-111 labeled gastrin peptide analogues (MG-CL1-4): Synthesis and quality control. *Pak. J. Pharm. Sci*,26(2), 299-305.

Abstract:

Radiolabeled neuropeptides are widely investigated to diagnose and therapy of tumors. These peptides get internalization after binding with particular receptors at the surface of cells and finally move to lysosome. Internalization into tumor cells helps in mapping the infected site. Minigastrin peptide analogues (MG-CL1-4) were synthesised and labeled with 111-In radioisotope under different sets of conditions for imaging CCK-2 receptor bearing tumors. Different parameters such as temperature (80-100°C), pH (4-12), incubation time (5-30 minutes) and dilution effect were investigated to get the maximum labeling yield and stability. The results indicated that MG-CL1-4 is successfully labeled with indium-111 at pH 4.5 with heating at 98°C for 15 minute. At these conditions i.e. heating, pH and incubation minimum oxidized and maximum labeling yield, more than 94 %, was obtained. The labeling stability was studied by incubating the radiolabeled complex for predefined time points in PBSA and blood serum. Results show that more than 90% radiolabeled MG-CL1-4 remained intact.

URL: <http://demo.pjps.pk/wp-content/uploads/pdfs/CD-PJPS-26-2-13/Paper-12.pdf>

4. Hussain, Z., Khan, Z. A., Naqvi, S. A. R., Shahzad, S. A & Yar, M.... (2013). Facile synthesis and herbicidal evaluation of 2-aryl-4h-3, 1-benzoxazin-4-ones. *J. Chem. Soc. Pak*,26(2), 448-455.

Abstract:

The present work deals with the synthesis of 4H-3,1-benzoxazin-4-ones carrying an aryl functional group at position-2. Synthesized compounds tested for herbicidal activity at three different doses (500 $\mu\text{g/mL}$, 50 $\mu\text{g/mL}$ and 5 $\mu\text{g/mL}$). Most of the compounds exhibited significant herbicidal activity against *Lemna aequinocalis* welv. at higher dose (500 $\mu\text{g/mL}$). Among the tested compounds 2-phenyl-4H-3,1-benzoxazin-4-one (3a) and 2-(3-chlorophenyl)-

4H-3,1-benzoxazin-4-one (3I) completely inhibited the plant growth at 500 and 50 µg/mL concentrations. All the synthetic compounds were characterized by FT-IR, ¹H NMR, EI-MS and elemental analysis.

URL: http://www.researchgate.net/publication/236031549_Facile_Synthesis_and_Herbicidal_Evaluation_of_2-Aryl-4H-3_1-benzoxazin-4-ones

5. Naqvi, S. A. R., Waseem, R., Mahmood, N., Hussain, Z., Khan, Z. A., Shahzad, S. A., Yar, M ... & Hussain, A. I. (2013). Phenolic acid content, antioxidant properties, and antibacterial potential of flowers and fruits from selected Pakistani indigenous medicinal plants. *SCIENCEASIA*, 39(4), 340-345.

Abstract:

Biological evaluation of *Lantana camara* and *Justicia adhatoda*, belonging to the medicinal plant families Verbenaceae and Acanthaceae, respectively, was performed. Both plants contain a very good range of phenolic compounds (20.5–80.9 mg GAE/g of dry extract). HPLC analysis of *Justicia adhatoda* flower and fruit extract showed a broad profile of phenolic acids such as p-hydroxy benzoic acid, syringic acid, gallic acid, and quercetin in substantial amounts. The antioxidant study showed moderate to good ability to inhibit linoleic acid peroxidation and to scavenge DPPH free radicals (67.5–80.4% and 71.3–85.9%, respectively). The antibacterial study reflected good antibacterial potential. This study showed that extracts of flowers and fruits of both plants grown in Soon Skaser Valley, Pakistan have a strong potential to scavenge free radicals and may be used to develop functional food and herbal medicines to treat oxidative stress diseases and bacterial infections.

URL: http://www.scienceasia.org/2013.39.n4/scias39_340.pdf

6. Naqvi, S. A. R., Qurat-Ul-Ain, Khan, Z. A., Hussain, Z., Shahzad, S. A., Yar, M., ... & Kousar, S. (2013). Antioxidant, Antibacterial and Antiproliferative Activities of Areal Parts of *Swertia chirata* (Bush Ham) Plant Extracts Using In Vitro Models. *Asian Journal Of Chemistry*, 25(10), 5448-5452.

Abstract:

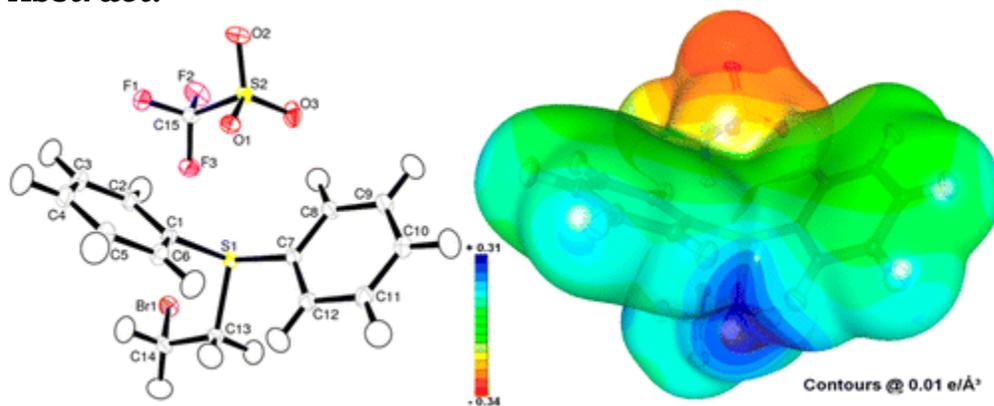
Aerial parts of *Swertia chirata* was investigated for its medicinal values. Like many other plants and herbs, *Swertia chirata* has also been used for treating diseases particularly liver disorder. Anti-disease functions of most of the plants or herbs extracts have been associated with antioxidant and antibacterial potential. This study was performed to explore the antioxidant and antibacterial activity of the *Swertia chirata* (Bush ham). This was done by measuring possible constituents responsible for its antioxidant activity such as total phenolic and flavonoid contents. Antioxidant potential was measured using authentic in vitro assay models such as DPPH free radical scavenging assay and per cent inhibition of linoleic acid peroxide. The

antibacterial and antiproliferative activity was measured against four different strains of gram positive and gram negative bacteria and MDBK cancer cell line, respectively. Promising concentration of total phenolics and flavonoids resulted encouraging DPPH free radical scavenging (84.32 ± 2.78 and 82.54 ± 3.12 %) and linoleic acid peroxide inhibition (94.04 ± 4.23 and 92.86 ± 4.78 %) and consequently credible antioxidant potential. Antibacterial and antiproliferative data of extracts indicated *Swertia chirata* might be a good member for fighting against infectious and chronic diseases.

URL: http://www.asianjournalofchemistry.co.in/User/ViewFreeArticle.aspx?ArticleID=25_10_36

7. Ahmed, M., Yar, M., Nassour, A., Guillot, B., Lecomte, C., & Jelsch, C. (2013). Experimental and Theoretical Charge Density Analysis of a Bromoethyl Sulfonium Salt. *The Journal of Physical Chemistry A*, 117(51), 14267-14275.

Abstract:



Bromoethyl sulfonium trifluoromethanesulfonate is a salt complex in which a sulfur atom makes three covalent bonds. This molecule has been proved to act as an efficient annulation reagent which results in formation of synthetically challenging and pharmaceutically important 4-, 5-, 6-, and 7-membered heterocycles in excellent yields. The charge density of the molecule was determined from both experimentally and theoretically derived diffraction data. The stereochemistry and electron density topology of the sulfonium group was analyzed. To understand the chemical reactivity of the molecule, the electrostatic potential difference between the two carbon atoms of the bromoethyl group was investigated. It has been considered that the hydrogen atoms on the carbon atom bound to sulfur are more acidic in character due to their vicinity with the triply covalently bonded positively charged sulfur atom. The electropositivity of the S-attached and Br-attached methylene groups are compared in the experimental and theoretical charge densities using topological atomic charges and electrostatic potential at the molecular surface.

URL: <http://pubs.acs.org/doi/abs/10.1021/jp410301d>

8. Khan, Z. A., Naqvi, S. A. R., Shahzad, S. A., Mahmood, N., Yar, M., & Zahoor, A. F. (2013). Synthesis and Antimicrobial Activity of 2-Aryl-4H-3, 1-benzoxazin-4-ones. *Asian Journal of Chemistry*, 25(1), 152-156.

Abstract:

Twenty derivatives of 2-aryl-4H-3,1-benzoxazin-4-one synthesized and their potential therapeutically significance tested against two strains of Gram positive bacteria (*Staphylococcus aureus* and *Bacillus subtilis*) and four strains of Gram negative bacteria (*Shigella flexnari*, *Escherichia coli*, *Salmonella typhi* and *Pseudomonas aeruginsoa*) by agar well diffusion method. The 2-(3-nitrophenyl)-4H-3,1-benzoxazin-4-one (**3f**) recorded significant antibacterial activity against *Bacillus subtilis* whereas 2-(4-bromophenyl)-4H-3,1-benzoxazin-one (**3o**) exhibited weak antibacterial activity against *Staphylococcus aureus*. Further 2-(2-methylphenyl)-4H-3,1-benzoxazin-4-one (**3b**) showed significant activity against *Shigella Flexnari*, *Escherichia coli*, *Pseudomonas aeruginsoa* and *Salmonella typhi*. The antibacterial activity of synthesized derivatives of 2-aryl-4H-3,1-benzoxazin-4-one was compared to reference standard antibiotics amoxicillin, streptomycin, kanamycin and ciprofloxacin. The present study revealed that 2-aryl-4H-3,1-benzoxazin-4-ones possess good bactericidal activity against a panel of bacteria causing common bacterial diseases and therefore opens the possibility of finding latest clinically useful antibacterial compounds. The synthesized compounds were characterized by ¹H NMR, EI, FT-IR and elemental analysis.

URL:[http://www.researchgate.net/publication/234110250_Asian_Journal_of_Chemistry_Vol._25_No._1_\(2013\)_152-156/file/d912f50f3e4ebe54db.pdf](http://www.researchgate.net/publication/234110250_Asian_Journal_of_Chemistry_Vol._25_No._1_(2013)_152-156/file/d912f50f3e4ebe54db.pdf)

9. Saqib, A. N. S., Waseem, A., Khan, A. F., Mahmood, Q., Khan, A., Habib, A., & Khan, A. R. (2013). Arsenic bioremediation by low cost materials derived from Blue Pine (< i> Pinus wallichiana</i>) and Walnut (< i> Juglans regia</i>). *Ecological Engineering*, 51, 88-94.

Abstract:

The present study investigates the use of different wastes such as blue Pine wood shavings, walnut shell and chick pea testa in arsenic removal from aqueous solutions. Various conditions that affect the adsorption such as pH, biosorbent dose, contact time, temperature and concentration of adsorbate were investigated. Blue Pine wood shavings showed a tremendous potential as a remediation material for the removal of arsenic from water samples (surface and ground water). Walnut shell pieces also showed good biosorption (88%); however, the chick pea testa was not much effective. Experimental data were modeled by Langmuir and Freundlich isotherms. It was observed that arsenic biosorption conformed to both Langmuir and

Freundlich isotherms. The Blue Pine biomass could be used as a low-cost biosorbent for arsenic removal from water samples.

URL: <http://www.sciencedirect.com/science/article/pii/S0925857412004181>

10. Iqbal, N., Mustafa, G., & Lieberzeit, P. A. (2013). Mass sensitive multi-sensor platform for receptor screening and quantification purposes. *Journal of the Chinese Advanced Materials Society*, 1(3), 200-209.

Abstract:

Quartz crystal microbalance (QCM) multi-sensor arrays coated with molecularly imprinted polymers (MIP) as recognition materials have been tested for screening and quantification. For receptor screening, six-electrode QCM sensor arrays containing MIP with variable ratios of vinylpyrrolidone–styrene–divinylbenzene copolymers were examined to identify the optimal monomer combination for chemical sensing of ethyl acetate in one measuring step. This revealed an optimum MIP that can detect vapours below 50 ppm. For quantification purposes, the QCM sensor array data were analysed chemometrically. Polystyrene–divinylbenzene imprinted polymers selectively detected volatile emissions from different herbs. The terpenes emission pattern revealed screening among isomeric terpenes with detection limits below 20 ppm. Furthermore, this strategy allows evaluating fresh and dried herbs and their levels of freshness and respective shelf lives.

URL: <http://www.tandfonline.com/doi/abs/10.1080/VBErGEekqSQ>

11. Khan, M. S. U., Akthar, Z., Iqbal, N & Saddiq, M (2013). Synthesis, characterization and morphological studies of some novel siloxane-based block co-polymeric materials containing organometallic as well as organic polyesteramides. *Journal of Organometallic Chemistry*, 745.312-328

Abstract:

A series of semi-aromatic diamine monomers (1,*m*-bis (4-amino benzoyloxy) alkanes; *m* = 2-6) having in-built ester linkages with variable methylene spacers were synthesized in two steps from aliphatic diols and *p*-nitrobenzoyl chloride and characterized by their melting points, elemental analysis, FTIR, ¹H and ¹³C NMR spectroscopic studies. The diamines were then polymerized *in-situ* with ferrocene-based organometallic and terephthaloyl- as well as isophthaloyl-based organic acyl chlorides along with telechelic polydimethylsiloxane oligomer to produce a novel set of ferrocene-containing siloxane-based block copolymers and their organic analogues. The corresponding polyesteramides of the synthesized copolymers, without siloxane segment, were also prepared for comparative studies. The structural features of the organometallic and organic block copolymers along with their respective polyesteramides were confirmed by their physical properties and spectroscopic studies. The molecular parameters of

all these materials were determined by static laser light scattering (LLS) technique and glass transition temperatures (T_g) were obtained by differential scanning calorimetry (DSC). The materials were soluble in sulphuric acid and partially soluble in common organic solvents at room temperature, yet become readily soluble upon N-trifluoroacetylation. The morphological information of the synthesized materials was obtained by X-ray diffraction and surface studies (SEM and AFM).

URL: <http://www.sciencedirect.com/science/article/pii/S0022328X13006244>

12. Mujahid, A., Iqbal, N., & Afzal, A. (2013). Bioimprinting strategies: From soft lithography to biomimetic sensors and beyond. *Biotechnology advances*, 31(8), 1435-1447.

Abstract:

Imprinting is a straightforward, yet a reliable technique to develop dynamic artificial recognition materials—so called as synthetic antibodies. Surface imprinting strategies such as soft lithography allow biological stereotyping of polymers and sol-gel phases to prepare extremely selective receptor layers, which can be combined with suitable transducer systems to develop high performance biomimetic sensors. This article presents an overview of the remarkable technical advancements in the field of surface bioimprinting with particular emphasis on surface imprinted bioanalyte detection systems and their applications in rapid bioanalysis and biotechnology. Herein, we discuss a variety of surface imprinting strategies including soft lithography, template immobilization, grafting, emulsion polymerization, and others along with their biomimetic sensor applications, merits and demerits. The pioneering research works on surface patterned biosensors are described with selected examples of detecting biological agents ranging from small biomolecules and proteins to living cells and microorganisms.

URL: <http://www.sciencedirect.com/science/article/pii/S0734975013001146>

13. Irshad, M., Iqbal, N., Mujahid, A., Afzal, A., Hussain, T., Sharif, A., ... & Athar, M. M. (2013). Molecularly Imprinted Nanomaterials for Sensor Applications. *Nanomaterials*, 3(4), 615-637.

Abstract:

Molecular imprinting is a well-established technology to mimic antibody-antigen interaction in a synthetic platform. Molecularly imprinted polymers and nanomaterials usually possess outstanding recognition capabilities. Imprinted nanostructured materials are characterized by their small sizes, large reactive surface area and, most importantly, with rapid and specific analysis of analytes due to the formation of template driven recognition cavities within the matrix. The excellent recognition and selectivity offered by this class of materials towards a

target analyte have found applications in many areas, such as separation science, analysis of organic pollutants in water, environmental analysis of trace gases, chemical or biological sensors, biochemical assays, fabricating artificial receptors, nanotechnology, *etc.* We present here a concise overview and recent developments in nanostructured imprinted materials with respect to various sensor systems, e.g., electrochemical, optical and mass sensitive, *etc.* Finally, in light of recent studies, we conclude the article with future perspectives and foreseen applications of imprinted nanomaterials in chemical sensors.

URL: <http://www.mdpi.com/2079-4991/3/4/615/htm>

14. Awais, M., Dini, D., Don MacElroy, J. M., Halpin, Y., Vos, J. G., & Dowling, D. P. (2013). Electrochemical characterization of NiO electrodes deposited via a scalable powder microblasting technique. *Journal of Electroanalytical Chemistry*, 689, 185-192.

Abstract:

In this contribution a novel powder coating processing technique (microblasting) for the fabrication of nickel oxide (NiO_x) coatings is reported. ~1.2 μm thick NiO_x coatings are deposited at 20 mm² s⁻¹ by the bombardment of the NiO_x powder onto a Ni sheet using an air jet at a speed of more than 180 m s⁻¹. Microblast deposited NiO_x coatings can be prepared at a high processing rate, do not need further thermal treatment. Therefore, this scalable method is time and energy efficient. The mechano-chemical bonding between the powder particles and substrate results in the formation of strongly adherent NiO_x coatings. Microstructural analyses were carried out using SEM, the chemical composition and coatings orientation were determined by XPS and XRD, respectively. The electroactivity of the microblast deposited NiO_x coatings was compared with that of NiO_x coatings obtained by sintering NiO_x nanoparticles previously sprayed onto Ni sheets. In the absence of a redox mediator in the electrolyte, the reduction current of microblast deposited NiO_x coatings, when analyzed in anhydrous environment, was two times larger than that produced by higher porosity NiO_x nanoparticles coatings of the same thickness obtained through spray coating followed by sintering. Under analogous experimental conditions thin layers of NiO_x obtained by using the sol-gel method, ultrasonic spray- and electro-deposition show generally lower current density with respect to microblast samples of the same thickness. The electrochemical reduction of NiO_x coatings is controlled by the bulk characteristics of the oxide and the relatively ordered structure of microblast NiO_x coatings with respect to sintered NiO_x nanoparticles here considered, is expected to increase the electron mobility and ionic charge diffusion lengths in the microblast samples. Finally, the increased level of adhesion of the microblast film on the metallic substrate affords a good electrical contact at the metal/metal oxide interface, and constitutes another reason in support of the choice of microblast as low-cost and scalable deposition method for oxide layers to be employed in electrochemical applications.

URL: <http://www.sciencedirect.com/science/article/pii/S1572665712004985>

15. Ramaya, S. M., Saleem, M., Atiq, S., Saddiq, S. A... & Mahmood, S. (2013). RKKY magnetic interactions in chemically synthesized $Zn_{0.95-x}Fe_{0.05}Al_xO$ ($x = 0, 0.03, 0.05, 0.07$) nanocrystallites. *Arabian Journal of Chemistry*.

Abstract:

Chemically derived auto-combustion technique is employed to synthesize the $Zn_{0.95-x}Fe_{0.05}Al_xO$ ($x = 0, 0.03, 0.05, 0.07$) nano-crystallites. The salient similarities between variations in lattice parameters, crystallite size, morphology, electrical resistivity and saturation magnetization designated a strong association between these properties. X-ray diffraction studies of all compositions revealed the phase pure wurtzite crystal structure with space group $P6_3mc$. The lattice parameters and crystallite size are changed with doping of Al attributed to the diversity in the size of ionic radii. Scanning electron micrographs revealed that Al doping affects the size and shape of grains in synthesized compositions. Temperature dependent electrical resistivity shows a decreased trend with the rise of temperature, confirming the semiconducting nature of compositions. The lower resistivity and enhanced saturation magnetization values in Al doped compositions correspond to the increase in density of carriers. Carrier mediated RKKY interactions are found to enhance magnetization.

URL: <http://www.sciencedirect.com/science/article/pii/S187853521300049X>

16. Tanvir, H., Saddiq, S. A., Atif, S & Awan, M. S. (2013). Induced modifications in the properties of Sr doped $BiFeO_3$ multiferroics. *Progress In Natural Science-Materials International*. 23(5), 487-492.

Abstract:

Multiferroics exhibit unique combination of ferroic properties, simultaneously. For instance, in $BiFeO_3$, magnetic and electric properties co-exist. In this work, $BiFeO_3$ and Sr-doped $BiFeO_3$ samples with general formula, $Bi_{1-x}Sr_xFeO_3$ ($x=0.00, 0.05, 0.10, 0.20, \text{ and } 0.30$) were synthesized by sol-gel auto-combustion technique, in order to investigate these ferroic properties. The samples were confirmed to have perovskite type rhombohedral structure, characteristic of $BiFeO_3$. A dilute phase of $Bi_2Fe_4O_9$ was also found in all the Sr-doped samples. The micrographs of the palletized samples revealed that minutely doped Sr might not have any effect on the morphology of the samples. Frequency dependent dielectric measurements were carried out at room temperature for all the samples from 100 Hz to 1 MHz. The dielectric constant of un-doped sample at low frequency was 52 which decreased with increasing Sr doping. An enhancement of magnetic properties was observed with increasing the Sr contents. Pure $BiFeO_3$ material was observed to have the least value of remanent magnetization. As the

Sr²⁺ ions were doped in BiFeO₃, its magnetization and remanence were increased to 0.867 emu/g and 0.175 emu/g, respectively, at x=0.30.

URL: <http://www.sciencedirect.com/science/article/pii/S1002007113001378>

17. Nazir, R., Samad Khan, A., Ahmed, A., Ur-Rehman, A., Anwar Chaudhry, A., Ur Rehman, I., & Wong, F. S. (2013). Synthesis and *in-vitro* cytotoxicity analysis of microwave irradiated nano-apatites. *Ceramics International*, 39(4), 4339-4347.

Abstract:

Nano-sized calcium deficient apatite (CDA) micelles were synthesized through microwave assisted the wet precipitation technique. Cetyltrimethylammonium bromide (CTAB) was employed as surface template to furnish the CDA particles with tailored size and shape. As-precipitated CDA was heat treated to observe the effect of heat treatment temperature on the interatomic rearrangement of entities within the apatite lattice. This transformation is responsible for conversion of CDA to β -tricalcium phosphate (β -TCP) at specific temperature. The phase purity, particles size, morphology and transformation kinetics were analyzed using X-ray Diffraction (XRD), Fourier Transform Infrared Spectroscopy (FTIR), Scanning Electron Microscopy (SEM) and Thermogravimetric Analysis (TGA). *In-vitro* studies were performed on β -TCP with three cell lines: osteoblasts, HeLa, and SF 767. The results showed that nano-sized particles were successfully synthesized in short time. The cells had appreciable proliferation/attachment on the surface of these nano-particles. It is concluded that the microwave irradiated synthesized β -TCP has good capacity in terms of biocompatibility and has the potential to be used in hard tissue regeneration applications.

URL: <http://www.sciencedirect.com/science/article/pii/S0272884212012722>

18. Iqbal, N., Afzal, A., Cioffi, N., Sabbatini, L & Torsi, L. (2013). NO_x sensing one- and two-dimensional carbon nanostructures and nanohybrids: Progress and perspectives. *Sensors And Actuators B-Chemical*, 181, 9-21.

Abstract:

One- and two-dimensional carbon nanostructures, i.e. carbon nanotubes (CNTs) and graphene possess exceptional physical properties owing to their distinctive structure and atomic arrangement. High electrical conductivity, highly exposed surface area and stability of these carbon nanostructures institute them as the leading choice of nanomaterials for a number of electrical and industrial applications. Besides these carbon nanostructures are extremely sensitive toward minute changes in the surrounding gas atmosphere, i.e. their conductance (or resistance) varies greatly with the adsorption-desorption of gas molecules such as nitrogen oxides (NO_x). This article critically reviews the most recent advances in NO_x sensors based on

one- and two-dimensional carbon nanostructures and nanohybrids as gas sensitive materials. The advantages and limitations of CNT- and graphene-based devices are briefly discussed in the light of recent literature. The potential and future perspectives of these devices are also outlined in this study.

URL: <http://www.sciencedirect.com/science/article/pii/S092540051300107X>

19. Khan, A. F., Awais, M., Khan, A. S., Tabassum, S., Chaudhry, A. A., & Rehman, I. U. (2013). Raman spectroscopy of natural bone and synthetic apatites. *Applied Spectroscopy Reviews*, 48(4), 329-355.

Abstract:

Raman spectroscopy of natural bones and hydroxyapatites is described. In addition, how Raman spectroscopy has proved crucial in providing baseline data for the modification of synthetic apatite powders that are routinely used now as bone replacement materials is explained. It is important to understand the chemical structural properties of natural bone. Bone consists of two primary components: an inorganic or mineral phase, which is mainly a carbonated form of a nanoscale crystalline calcium phosphate, closely resembling hydroxyapatite, and an organic phase, which is composed largely of type I collagen fibers. Other constituents of bone tissue include water and organic molecules such as glycosaminoglycans, glycoproteins, lipids, and peptides. Ions such as sodium, magnesium, fluoride, and citrate are also present, as well as hydrogenophosphate. Hence, the mineral phase in bone may be characterized essentially as nonstoichiometric substituted apatite. Such a distinction is important in the development of synthetic calcium phosphates for application as skeletal implants. An understanding of bone function and its interfacial relationship to an implant clearly depends on the associated structure and composition. Therefore, it is essential to fully understand the chemical composition of bone, and Raman spectroscopy is an excellent technique for such an analysis.

URL: <http://www.tandfonline.com/doi/abs/10.1080/.VBE5REekgSQ>

20. Siddiqi, H. M., Afzal, A., Sajid, S., & Akhter, Z. (2013). Synthesis, characterization and thermal oxidative stability of rigid epoxy polymers cured from aromatic mono- and di- amines. *Journal of Polymer Research*, 20(2), 1-10.

Abstract:

Synthesis, characterization and thermal properties of some rigid epoxy polymers cured from aromatic mono- and di-amine are presented. The aromatic mono- and di-amine are prepared via nucleophilic substitution reaction of *p*-nitrochlorobenzene with the respective mono- and di-hydroxybiphenyl, and via subsequent hydrogenation of the aromatic nitro products. The structures of both, mono- and di- amines, are confirmed by Fourier transform infrared (FTIR)

spectroscopy, nuclear magnetic resonance (^1H NMR) and elemental (CHN) analysis. Furthermore, three types of rigid epoxy polymers, (i) HBREP, (ii) HCREP, and (iii) BCREP, are prepared by melt processing and curing of the epoxy monomers with (i) monoamine, (ii) diamine, and (iii) 1: 1 mixture of mono- and di-amines, respectively. These rigid epoxy polymers are characterized by FTIR spectroscopy, X-ray photoelectron spectroscopy (XPS), differential scanning calorimetry (DSC) and thermogravimetric analysis (TGA). TGA and DSC results show excellent thermal oxidative stability ($T_{d10} \geq 400\text{ }^\circ\text{C}$) and substantially high glass transition temperatures ($T_g = 80\text{--}120\text{ }^\circ\text{C}$) for these rigid epoxy polymers. The intermediary BCREP exhibits the highest T_g as well as the maximum heat resistance and thermal stability regardless of its lower chemical crosslink density with respect to HCREP. The kinetic analyses of the oxidative degradation of polymers also reveal sufficiently high activation energy of pyrolysis for BCREP.

URL: <http://link.springer.com/article/10.1007/s10965-012-0041-0>

21. Ali, G., Siddiqi, S. A., Ramay, S. M., Atiq, S., & Saleem, M. (2013). Effect of Co substitution on the structural, electrical, and magnetic properties of $\text{Bi}_0.9\text{La}_0.1\text{FeO}_3$ by sol-gel synthesis. *International Journal of Minerals, Metallurgy, and Materials*, 20(2), 166-171.

Abstract:

Cobalt (Co)-doped $\text{Bi}_{0.9}\text{La}_{0.1}\text{FeO}_3$ multiferroics were synthesized by a sol-gel method based on the autocombustion technique. As-synthesized powder was examined using various characterization techniques to explore the effect of Co substitution on the properties of $\text{Bi}_{0.9}\text{La}_{0.1}\text{FeO}_3$. X-ray diffraction reveals that Co-doped $\text{Bi}_{0.9}\text{La}_{0.1}\text{FeO}_3$ preserves the perovskite-type rhombohedral structure of BiFeO_3 , and the composition without Co preserves the original structure of the phase; however, a second-phase $\text{Bi}_2\text{Fe}_4\text{O}_9$ has been identified in all other compositions. Surface morphological studies were performed by scanning electron microscopy. Temperature-dependent resistivity of the samples reveals the characteristic insulating behavior of the multiferroic material. The resistivity is found to decrease with the increase both in temperature and Co content. Room temperature frequency-dependent dielectric measurements were also reported. Magnetic measurements show the enhancement in magnetization with the increase in Co content.

URL: <http://link.springer.com/article/10.1007/s12613-013-0709-4>

22. Khan, A. S., Wong, F. S. L., McKay, I. J., Whiley, R. A., & Rehman, I. U. (2013). Structural, mechanical, and biocompatibility analyses of a novel dental restorative nanocomposite. *Journal of Applied Polymer Science*, 127(1), 439-447.

Abstract:

Structure and biocompatibility are key parameters that determine the usefulness of dental materials for clinical use. Novel polyurethane (PU) nanocomposite material was prepared by

chemically binding nanohydroxyapatite (nHA) to the diisocyanate component of the PU backbone by solvent-polymerization. nHA was incorporated into PU by the stepwise addition of monomeric units of the PU. The PU/nHA composite was analyzed by ^{13}C Nuclear magnetic resonance (structural) and X-ray diffraction (phase analysis). The tensile strength and elastic modulus was evaluated for mechanical properties. These analyses revealed linkage between the hard- and soft-segments are urethane linkage and showed high mechanical properties with increase in content of nHA. To assess biocompatibility osteoblast cells were seeded on to the material and allowed to adhere and proliferate. Osteoblast-like cell growth and proliferation was assessed by MTS assay. It was found that cells adhered and proliferated on these novel substrates. To test bacterial adhesion discs of composite with and without nHA were incubated with standardized suspensions of oral bacterium *Streptococcus sanguinis* strain NCTC 7863. PU composites with nHA exhibited biocompatibility with respect to mammalian cell growth and showed significantly reduced bacterial adhesion as compared to PU alone.

URL: <http://onlinelibrary.wiley.com/doi/10.1002/app.37841/full>

23. Abbas, G., Irfan, A., Mir, M., & Khan, A. F. (2013). Electronic structure and absorption spectra of 6-picoline Schiff base: A DFT and XRD based approach. *Journal of Molecular Structure, 1050*, 10-14.

Abstract:

The spectroscopic and molecular structure of 2-((E)-[(6-methylpyridin-2-yl)imino]methyl)phenol (MPMP) has been characterized by FT-IR, UV-Vis and X-ray diffraction. The ground state geometry of MPMP has been optimized by using density functional theory at DFT/B3LYP/6-31G^{*} and DFT/B3LYP/6-31 + G^{*} level of theories. The DFT/B3LYP/6-31 + G^{*} level of theory is good to reproduce the geometrical parameters. We shed light on the frontier molecular orbitals; highest occupied molecular orbitals (HOMOs) and lowest unoccupied molecular orbitals (LUMOs) which play important role in charge transfer properties. The absorption spectrum was calculated by using time dependent density functional theory at TD-B3LYP/6-31 + G^{*} level of theory. The absorption wavelengths were computed in different solvents by using polarizable continuum model (PCM). The solvent polarity effect was studied on the absorption wavelengths. The structure-property relationship has been discussed intensively.

URL: <http://www.sciencedirect.com/science/article/pii/S0022286013006133>

24. Zhang, M., Zhang, S., & Iqbal, J. (2013). Key wavelengths selection from near infrared spectra using Monte Carlo sampling–recursive partial least squares. *Chemometrics and Intelligent Laboratory Systems, 128*, 17-24.

Abstract:

Variable selection is a critical step in data analysis for near infrared spectroscopy. Recently, many studies have been reported on variable selection and researchers have proposed a large number of methods to identify variables (wavelengths) that contribute useful information. In the present study, a key wavelengths selection method named Monte Carlo sampling-recursive partial least squares (MCS-RPLS) is proposed. The method mainly includes three steps: (1) Monte Carlo sampling; (2) feature selection for each subset; and (3) determination of the optimum feature set for the dataset. The method has been used for feature selection and multivariate calibration on four near infrared spectroscopic datasets: corn moisture, corn protein, HSA and γ -globulin of biological samples. And the 10-fold cross validation results are compared with those obtained by full spectra-PLS, Moving Window Partial Least Squares (MWPLS), Monte Carlo-based Uninformative Variable Elimination (MC-UVE) and CARS. The results showed that the data dimensionalities and the RMSECV values of the selected variables are greatly reduced, thus the MCS-RPLS is available for feature selection from NIR data.

URL: <http://www.sciencedirect.com/science/article/pii/S016974391300141X>

25. Yar, M., Mushtaq, N., Afzal, S., Khan, A. S., Khan, I. U., Akhter, M. N., ... & Saleem, M. (2013). Synthesis, Biological Evaluation and Study of the Effect of Various N-Substituents on the Thermal Stabilities of Some New Diethanolamine Derivatives. *ASIAN JOURNAL OF CHEMISTRY*, 25(13), 7297-7304.

Abstract:

Diethanolamine and its derivatives are of considerable interest in medicinal and other industrial products. A series of new diethanolamine derivatives has been synthesized and characterized by ^1H NMR, ^{13}C NMR, FTIR and mass spectrometry. All synthesized compounds have been tested for their *in vitro* antibacterial activity against pathogenic microorganisms *Escherichia coli*, *Staphylococcus aureus*, *Micrococcus luteus*, *Pseudomonas aeruginosa*, *Bacillus subtilis*, *Pasteurella mutocida*, *Rhizopus oryzae* and *Salmonella typhi*. Among the tested compounds, compounds **2a**, **2b**, **2c**, **3a** and **4b** have been found to be most potent members, which inhibited most of the pathogens used in the assay. Diethanolamine must possess tosyl or trifluoro groups in order to have good antimicrobial activities. All synthesized derivatives exhibited average FRAP activity and considerably good metal chelating activity and compound **2c** showed excellent ABTS radical scavenging among all tested derivatives. Thermal stability and the effect of various N-protected groups on the thermal stability and degradation of selected diethanolamine derivatives (free flowing oils at room temperature and solid derivative **2a**) has been studied by TGA and DSC analysis.

URL: http://www.asianjournalofchemistry.co.in/user/journal/viewarticle.aspx?ArticleID=25_14_53

26. Kim, J. A., Hwang, T., Dugasani, S. R., Amin, R., Kulkarni, A., Park, S. H., & Kim, T. (2013). Graphene based fiber optic surface plasmon resonance for bio-chemical sensor applications. *Sensors and Actuators B: Chemical*, 187, 426-433.

Abstract:

In this study, a surface plasmon resonance (SPR) based fiber optic sensor coated with graphene is introduced. A graphene film synthesized by thermal chemical vapor deposition (TCVD) is transferred onto the sensing area of the optical fiber. The detection mechanism of this sensor is based on the principle that the SPR signal changes according to the refractive indices of analytes. Biotinylated Double Crossover DNA (DXB) lattice and protein Streptavidin (SA) were used for the evaluation. To the best of our knowledge, this is the first attempt to use graphene as a replacement for conventional metal films. The exact SPR phenomena and the red-shift of 7.276 nm for the DXB and SA combination were observed.

URL: <http://www.sciencedirect.com/science/article/pii/S0925400513000567>

27. Chaudhry, A. A., Knowles, J. C., Rehman, I., & Darr, J. A. (2013). Rapid hydrothermal flow synthesis and characterisation of carbonate-and silicate-substituted calcium phosphates. *Journal of biomaterials applications*, 28(3), 448-461.

Abstract:

A range of crystalline and nano-sized carbonate- and silicate-substituted hydroxyapatite has been successfully produced by using continuous hydrothermal flow synthesis technology. Ion-substituted calcium phosphates are better candidates for bone replacement applications (due to improved bioactivity) as compared to phase-pure hydroxyapatite. Urea was used as a carbonate source for synthesising phase pure carbonated hydroxyapatite (CO₃-HA) with ≈5 wt% substituted carbonate content (sample 7.5CO₃-HA) and it was found that a further increase in urea concentration in solution resulted in biphasic mixtures of carbonate-substituted hydroxyapatite and calcium carbonate. Transmission electron microscopy images revealed that the particle size of hydroxyapatite decreased with increasing urea concentration. Energy-dispersive X-ray spectroscopy result revealed a calcium deficient apatite with Ca:P molar ratio of 1.45 (±0.04) in sample 7.5CO₃-HA. For silicate-substituted hydroxyapatite (SiO₄-HA) silicon acetate was used as a silicate ion source. It was observed that a substitution threshold of ~1.1 wt% exists for synthesis of SiO₄-HA in the continuous hydrothermal flow synthesis system, which could be due to the decreasing yields with progressive increase in silicon acetate concentration. All the as-precipitated powders (without any additional heat treatments) were analysed using techniques including Transmission electron microscopy, X-ray powder diffraction, Differential scanning calorimetry, Thermogravimetric analysis, Raman spectroscopy and Fourier transform infrared spectroscopy.

URL: <http://jba.sagepub.com/content/early/2012/09/12/0885328212460289.abstract>

28. Atiq, S., Siddiqi, S. A., Abbas, F., Saleem, M., & Ramay, S. M. (2013). Carriers-assisted Enhanced Ferromagnetism in Al-doped ZnMnO Nano-crystallites. *Chinese Journal of Chemical Physics*, 26(4), 457-461.

Abstract:

Zn_{0.95-x}Al_xMn_{0.05}O (x=0, 0.03, 0.05, and 0.07) dilute magnetic semiconductor materials have been synthesized by sol-gel auto-combustion technique. The effect of Al doping on the structural, electrical, and magnetic properties has been investigated. X-ray diffraction studies demonstrate the existence of single phase characteristic hexagonal wurtzite type crystal structure, similar to the host ZnO, in all the synthesized compositions. Although, the microscopic images revealed that the grains were clustered, yet some individual grains could be seen to have hexagonal texture. Electrical resistivity was observed to decrease with the rise of temperature up to 450 °C, depicting the characteristic semiconductor behavior. Room temperature ferromagnetic behavior was observed in all the compositions. The value of saturation magnetization increased with the increase of Al concentration in ZnMnO system referred to the gradual enhancement of free carriers.

URL: <http://scitation.aip.org/content/cps/journal/cjcp/26/4/10.1063/1674-0068/26/04/457-461>

29. Khan, A. S., Aamer, S., Chaudhry, A. A., Wong, F. S., & Rehman, I. U. (2013). Synthesis and characterizations of a fluoride-releasing dental restorative material. *Materials Science and Engineering: C*, 33(6), 3458-3464.

Abstract:

The aim was to develop an obturating material which has the tendency to release fluoride and minimize interfaces with tooth. Nano-fluorapatite (nFA) powder was synthesized by sol-gel. The composite based on polyurethane (PU) was obtained by chemically binding the nFA (10, 15, 20% wt/wt) to the diisocyanate component by utilizing *in-situ* polymerization. The procedure involved stepwise addition of monomeric units of PU, and optimizing the reagent concentrations to synthesize composite. The structural, phase and morphological analysis of nFA was evaluated. The structural, fluoride release and *in-vitro* adhesion analysis with tooth structure of PU/nFA was conducted. For fluoride release analysis the samples were stored in artificial saliva and deionized water for periodical time intervals. Bond strength of composites was analyzed by push-out test. Chemical linkage was achieved between PU and nFA without intermediate coupling agent. The insignificant difference of fluoride release pattern was observed in artificial saliva and ($p \geq 0.05$) deionized water. The PU/nFA composite provided sustained release of fluoride over a long period of time. The composite showed more adhesion toward tooth structure with the increase in concentration of nFA. Bond strength of composite

was in accordance with root canal filling material, hence, the material with anti-cariogenic properties can be used as an obturating mater

URL: <http://www.sciencedirect.com/science/article/pii/S0928493113002439>

30. Lee, J., Hamada, S., Hwang, S. U., Amin, R., Son, J., Dugasani, S. R., Murata, S., Park, S. H (2013). Quantitative analysis of molecular-level DNA crystal growth D a 2D surface. *Scientific Reports*, 3, 2115.

Abstract:

Crystallization is an essential process for understanding a molecule's aggregation behavior. It provides basic information on crystals, including their nucleation and growth processes. Deoxyribonucleic acid (DNA) has become an interesting building material because of its remarkable properties for constructing various shapes of submicron-scale DNA crystals by self-assembly. The recently developed substrate-assisted growth (SAG) method produces fully covered DNA crystals on various substrates using electrostatic interactions and provides an opportunity to observe the overall crystallization process. In this study, we investigated quantitative analysis of molecular-level DNA crystallization using the SAG method. Coverage and crystal size distribution were studied by controlling the external parameters such as monomer concentration, annealing temperature, and annealing time. Rearrangement during crystallization was also discussed. We expect that our study will provide overall picture of the fabrication process of DNA crystals on the charged substrate and promote practical applications of DNA crystals in science and technology.

URL: <http://www.nature.com/srep/2013/130702/srep02115/full/srep02115.html>

31. Yar, M., Mushtaq, N., & Afzal, S. (2013). Synthesis, reactions, applications, and biological activity of diethanolamine and its derivatives. *Russian Journal of Organic Chemistry*, 49(7), 949-967.

Abstract:

The review considers recent advances in using diethanolamine (DEA) in the synthesis of amides, polymerization reactions, and synthesis of heterocycles, crown ethers, Mannich bases, and ionic liquids. Biological activity of DEA and its derivatives is also reviewed.

URL: <http://link.springer.com/article/10.1134/S1070428013070014>

32. Khalid, A., Siddiqi, S. A., & Aslam, A. (2013). Synthesis and Characterization of Alkaline-Earth Metal (Ca, Sr, and Ba) Doped Nanodimensional LaMnO₃ Rare-Earth Manganites. *Chinese Physics Letters*, 30(7), 077501.

Abstract:

The substitution of divalent cations of alkaline-earth elements in nanodimensional structures of rare-earth manganites produces advanced materials with potential electrical and magnetic functionalities. A systematic investigation of $\text{La}_{0.65}\text{A}_{0.35}\text{MnO}_3$ (A = Ca, Sr, Ba) materials synthesized with a modified citrate route adopting ethanol dehydration has been undertaken. The structural and morphological analyses are carried out by using x-ray diffraction and scanning electron microscopy, respectively. Resistivity measurements are performed in variation with temperature to study the electrical transport properties which are found to vary with the size of the A-site cationic radius. Room temperature magnetic measurements are carried out to investigate the type of magnetic phase present in materials. The stability of the magnetic phase and coercivity are found to be dependent on the size of nanocrystallites.

URL: <http://iopscience.iop.org/0256-307X/30/7/077501>

33. Ul-Haq, Z., Usmani, S., Mahmood, U., al-Rashida, M., & Abbas, G. (2013). In-silico analysis of chromone containing sulfonamide derivatives as human carbonic anhydrase inhibitors. *Medicinal Chemistry*, 9(4), 608-616.

Abstract:

Computational tools of analysis were used on a set of synthetic chromone containing sulfonamide derivatives for evaluation of their enzyme inhibitory activity against Carbonic Anhydrase (CA) isozymes. GOLD docking software was utilized to dock the compounds against two human Carbonic Anhydrase (hCA) proteins; hCAII and hCA-IX. Differences in conformation and orientation of molecules within hCA-II and hCA-IX binding pockets were studied in detail which revealed that compounds with fluorine at R¹ position and phenyl sulfonamide substituent at para position served as potent inhibitors against both proteins due to anomalous chemistry of fluorine atom. It was also noticed that the activity was decreased when sulfonamide moiety was shifted from para to meta position since it dragged the interacting specie of compounds away from Zn metal. Similarly, when substituents were replaced by F > Br > C₂H₅ > H, the activity declined due to the electronegativity effect. Binding interaction results against CA-IX seemed to be better than CA-II due to large binding cavity, predicting the more potent inhibitory activity against hCA-IX.

URL: <http://www.ingentaconnect.com/content/ben/mc/2013/00000009/00000004/art00015>

34. Shehzad, K., Ul-Haq, A., Ahmad, S., Mumtaz, M., Hussain, T., Mujahid, A., ... & Pervaiz, M. (2013). All-organic PANI-DBSA/PVDF dielectric composites with unique electrical properties. *Journal of Materials Science*, 48(10), 3737-3744.

Abstract:

Novel all-organic polymer high-dielectric permittivity composites of polyaniline (PANI)/poly

(vinylidene fluoride) (PVDF) were prepared by solution method and their dielectric and electric properties were studied over the wide ranges of temperatures and frequencies. To improve the interface bonding between two polymers, dodecylbenzenesulfonic acid (DBSA), a bulky molecule containing a polar head and a long non-polar chain was used both as a surfactant and as dopant in polyaniline (PANI) synthesis. Synthesized conducting PANI–DBSA particles were dispersed in poly(vinylidene fluoride) (PVDF) matrix to form an all-organic composite with different PANI–DBSA concentrations. Near the percolation threshold, the dielectric permittivity of the composites at 100 Hz frequency and room temperature was as high as 170, while the dielectric loss tangent value was as low as 0.9. Like typical percolation system, composites experienced high dielectric permittivity at low filler concentrations. However, their dielectric loss tangent was low enough to match with non-percolative ceramic filler-based polymer composites. Maximum electrical conductivity at 24 wt% of PANI–DBSA was mere 10^{-6} S/cm, a remarkably low value for percolative-type composites. Increase in the dielectric permittivity of the composites with increase in temperature from 25 to 115 °C for different PANI–DBSA concentrations was always in the same range of 50–60 %. However, the degree of increase in the electrical conductivity with the temperature was more prominent at low filler concentrations compared with high filler concentrations. Distinct electrical and their unique thermal dependence were attributed to an improved interface between the filler and the polymer matrix.

URL: <http://link.springer.com/article/10.1007/s10853-013-7172-5>

35. Zahid, M., Kim, B., Hussain, R., Amin, R., & Park, S. H. (2013). DNA nanotechnology: a future perspective. *Nanoscale research letters*, 8(1), 1-13.

Abstract:

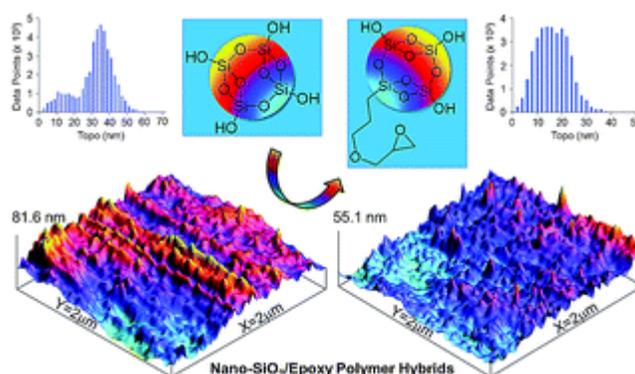
In addition to its genetic function, DNA is one of the most distinct and smart self-assembling nanomaterials. DNA nanotechnology exploits the predictable self-assembly of DNA oligonucleotides to design and assemble innovative and highly discrete nanostructures. Highly ordered DNA motifs are capable of providing an ultra-fine framework for the next generation of nanofabrications. The majority of these applications are based upon the complementarity of DNA base pairing: adenine with thymine, and guanine with cytosine. DNA provides an intelligent route for the creation of nanoarchitectures with programmable and predictable patterns. DNA strands twist along one helix for a number of bases before switching to the other helix by passing through a crossover junction. The association of two crossovers keeps the helices parallel and holds them tightly together, allowing the assembly of bigger structures. Because of the DNA molecule's unique and novel characteristics, it can easily be applied in a vast variety of multidisciplinary research areas like biomedicine, computer science, nano/optoelectronics, and bionanotechnology.

URL: <http://link.springer.com/article/10.1186/1556-276X-8-119>

36. Afzal, A., Siddiqi, H. M., Saeed, S., & Ahmad, Z. (2013). Exploring resin viscosity effects in solventless processing of nano-SiO₂/epoxy polymer hybrids. *RSC Advances*, 3(12), 3885-3892.

Abstract:

Bisphenol A diglycidylether (DGEBA) based low viscosity, liquid epoxy resins are widely used as basis for advanced polymers and nanocomposites, adhesives, protective coatings and encapsulation. We present “green” synthesis of nano-SiO₂/epoxy polymer hybrids by a two-step chronological polymerization of inorganic and organic monomers without the use of diluents (solvents). Two types of liquid epoxy resins, D.E.R. 330 and D.E.R. 332, are used to demonstrate the influence of resin viscosity on microstructure, tensile strength and thermal stability of resulting hybrids. Obviously, differences in viscosity of two epoxy resins originate from variations in respective chain lengths, *i.e.* molar mass, which affect the overall crosslink density and properties of hybrids. In addition, grafting of nano-SiO₂ phases with organosilane is performed to achieve inorganic–organic (IO) phase interlinking and to investigate its consequences. Nano-SiO₂/epoxy hybrids are characterized by FTIR spectroscopy and XPS. AFM is used to study microstructure and surface properties of hybrids. AFM images show good distribution of nano-SiO₂ phases within epoxy polymer. It is observed that the size of nano-SiO₂ grows significantly, if resin viscosity is increased or if covalent IO phase interlinks are not present. Tensile measurements show considerable improvement in strength and modulus of nano-SiO₂/epoxy polymer hybrids as compared to neat epoxy polymers. DSC and TGA also demonstrate an increase in glass transition temperature (T_g) and thermal stability. We observe that viscosity effects are evenly pronounced in solventless processing of nano-SiO₂/epoxy polymer hybrids, and small changes in resin viscosity influence the miscibility of IO phases, the dispersion of SiO₂ and the performance of resulting hybrids.

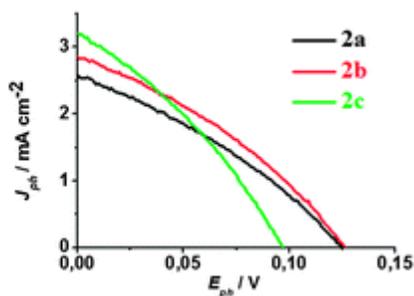
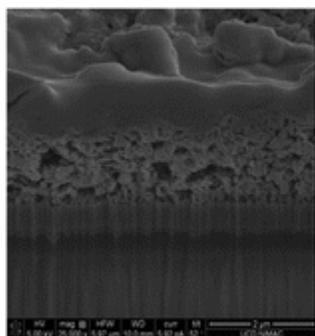


URL: <http://pubs.rsc.org/EN/content/articlelanding/2013/ra/c3ra21150a/unauth#!divAbstract>

37. Gibson, E. A., Awais, M., Dini, D., Dowling, D. P., Pryce, M. T., Vos, J. G., ... & Hagfeldt, A. (2013). Dye sensitised solar cells with nickel oxide photocathodes prepared via scalable microwave sintering. *Physical Chemistry Chemical Physics*, 15(7), 2411-2420.

Abstract:

Photoactive NiO electrodes for cathodic dye-sensitised solar cells (p-DSCs) have been prepared with thicknesses ranging between 0.4 and 3.0 μm by spray-depositing pre-formed NiO nanoparticles on fluorine-doped tin oxide (FTO) coated glass substrates. The larger thicknesses were obtained in sequential sintering steps using a conventional furnace (CS) and a newly developed rapid discharge sintering (RDS) method. The latter procedure is employed for the first time for the preparation of p-DSCs. In particular, RDS represents a scalable procedure that is based on microwave-assisted plasma formation that allows the production in series of mesoporous NiO electrodes with large surface areas for p-type cell photocathodes. RDS possesses the unique feature of transmitting heat from the bulk of the system towards its outer interfaces with controlled confinement of the heating zone. The use of RDS results in a drastic reduction of processing times with respect to other deposition methods that involve heating/calcination steps with associated reduced costs in terms of energy. P1-dye sensitized NiO electrodes obtained *via* the RDS procedure have been tested in DSC devices and their performances have been analysed and compared with those of cathodic DSCs derived from CS-deposited samples. The largest conversion efficiencies (0.12%) and incident photon-to-current conversion efficiencies, IPCEs (50%), were obtained with sintered NiO electrodes having thicknesses of $\sim 1.5\text{--}2.0\ \mu\text{m}$. In all the devices, the photogenerated holes in NiO live significantly longer ($\tau_h \sim 1\ \text{s}$) than have previously been reported for P1-sensitized NiO photocathodes. In addition, P1-sensitized sintered electrodes give rise to relatively high photovoltages (up to 135 mV) when the triiodide-iodide redox couple is used.



URL: <http://pubs.rsc.org/en/content/articlelanding/2013/cp/c2cp43592f/unauth#!divAbstract>

DEPARTMENT OF MANAGEMENT SCIENCE

Journal Papers

1. Afza, T & Anwar, Z (2013). Foreign Direct Investment (FDI) in Pakistan: Measuring Impact of Cost of War Against Terrorism, Political Instability and Electricity Generation. *Caspian Journal of Applied Sciences Research*. 3(2), 117-127

Abstract:

Foreign Direct Investment (FDI) was proven to be a significant source of investment for developing countries which helps to bridge saving-investment gap, creation of employment opportunities, transfer of technology, and ultimately increasing economic growth of the host countries. This study empirically investigated the determinants of FDI for Pakistan for the period 1980 to 2010 by using annual secondary time series data. The study for the first time tested the impact of cost of war against terrorism, political instability, electricity generation, (along with the control variables of market size, inflation rate, exchange rate stability, trade openness and incentives provided to investors) on FDI inflows in Pakistan by using both ARMA model and ordinary least square regression technique. As expected, the estimated results confirmed that the war against terrorism and political instability had negative impact whereas electricity generation had a positive impact on FDI flows in Pakistan. Among the control variables market size, exchange rate stability, trade openness and incentives provided to investors had positively influenced the FDI whereas the inflation rate shown a negative relationship with foreign direct investment flows.

URL: <http://connection.ebscohost.com/c/articles/86941250/foreign-direct-investment-fdi-pakistan-measuring-impact-cost-war-against-terrorism-political-instability-electricity-generation>

2. Asghar, M J K A., Talat, A & Bodla, M A (2013). Efficiency of the Mutual Funds in Pakistan. *Middle-East Journal of Scientific Research*. 18(8), 1055-1064

Abstract:

The study has applied non-parametric Data Envelopment Analysis (DEA) to estimate the cost efficiency of 100 mutual funds operating in Pakistan over the period of 2005 to 2010. The value added approach is followed for the selection of input and output variables. The current study has used investments and returns as output variables whereas; management fee, business services and equity are chosen as input variables. The mutual funds of Pakistan are found to be 92 percent technical efficient, 97 percent allocative efficient and 89 percent cost efficient over

the study period. Moreover, the study also tried to study the impact of stock market crisis on the efficiency trend of the mutual funds in Pakistan. The results showed an improvement in the efficiency scores from 2005 to 2008 and then noticed a significant fall in the mean efficiency scores of mutual funds in the financial year 2009 due to stock market crisis.

URL: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2391574

3. Afza, T., Yousaf, H., & Alam, A. (2013). Information asymmetry, corporate governance and IOP under-pricing. *Science International*, 25(4). 989-997

Abstract:

As Under-pricing negatively influences firm value due to lower than expected IPO proceeds, corporations therefore, try to minimize the negative effect of underpricing on firm value before going public. Existing literature examined the function of corporate governance as a signalling device in reducing the level of underpricing in both developed and developing countries. However, no evidence has been found regarding the moderating effect of corporate governance tools (ownership structure and board composition) on relationship between informational asymmetry and level of underpricing. Current study therefore, by using sample data of 55 IPOs listed on KSE for the period of 2000 to 2011 examined the moderating effect of corporate governance on the relationship of information asymmetry and level of under-pricing. Empirical findings validated that information asymmetry is a significant determinant of level of under-pricing in Pakistan. The findings also reveal that corporate governance particularly institutional investment and CEO duality have an effect on the level of under-pricing and corporate governance adds value to the firm by reducing the level of under-pricing.

URL: [http://www.sci-int.com/pdf/192489062955--989-997--Talat--%20FINALL COMSAT-Lahore-.pdf](http://www.sci-int.com/pdf/192489062955--989-997--Talat--%20FINALL%20COMSAT-Lahore-.pdf)

4. Afza, T., & Asghar, M. J. E. K. A. (2013). Efficiency of Modaraba and Leasing Companies in Pakistan. *Middle-East Journal of Scientific Research* 17 (3). 305-314.

Abstract:

The study has estimated the profit efficiency, technical efficiency and cost efficiency of modaraba and leasing companies in Pakistan over the period of 2005 to 2010 with the help of parametric Stochastic Frontier Approach (SFA). The input and output variables were selected by following the value added approach. The results revealed that leasing companies are 86.4% profit efficient, 86.5% technical efficient and 89% cost efficient whereas, modaraba companies are 87.2% profit efficient, 51.2% technical efficient and 96.1% cost efficient. Moreover, the study also found that the financial crisis in 2009 has negatively affected the profit efficiency of

leasing firm whereas, the study do not find any drop in the efficiency trend of modaraba companies.

URL: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2355803

5. Alam, A., Talat, A & Bodla M. A. (2013) Capital Market Imperfections and Equity Derivatives: A Case of Malaysian Non-Financial Firms. *Middle-East Journal of Scientific Research* 17 (1). 110-116

Abstract:

Recent global financial crunch 2007 increases the presence of equity risk exposure all over the world, especially in Asian countries, which increases the incentive of using equity derivative for managing risk. Existing literature provides enough evidence regarding the firm specific determinants of financial derivatives in both advanced and Asian countries, however no study has up till now examined the determinants of equity derivatives. Current study identifies the determinants of equity derivatives by using sample data of Malaysian non financial firms listed on Bursa Stock Exchange for the period of 2004-2010. Empirical findings report that corporations having higher informational asymmetry, agency costs of debt and financial constraints are more likely to use equity derivatives. Detailed analysis with respect to informational asymmetry reports that firm shaving higher informational asymmetry as compared to those having lower are using equity derivatives for reducing informational asymmetry, agency costs and financial constraints.

URL: [http://www.idosi.org/mejsr/mejsr17\(1\)13/19.pdf](http://www.idosi.org/mejsr/mejsr17(1)13/19.pdf)

6. Talat, A & Nasir, M. S. (2013) Institutional Shareholders' Activism: Do it make a Difference. *International Journal of Management and Computing Sciences*. 2 (3). 146- 159 (Abstract not Found)

7. Mujtaba, B. G., & Afza, T. (2013). Virtual Leaps in Distance Education: A Conversation with Dr. Naveed A. Malik, Founding Rector of the Virtual University of Pakistan. *Journal of Applied Management and Entrepreneurship*, 18(3), 113-122

Abstract:

Besides being an honest, knowledgeable, humble, and respected man, Dr. Naveed A. Malik is the Founder-Rector of the Virtual University of Pakistan. In his position as the Rector, Dr. Malik is the Chief Executive and Academic Officer of the University and his responsibility is to ensure that the provisions of the Virtual University Ordinance, the Statutes, the Regulations and Rules are faithfully observed in order to promote teaching, research, administration, general efficiency and good order of the University

URL: <http://www.whitneypress.com/JAME/JAME Vol 18 No 3 2013.pdf#page=117>

8. Shahbaz, M., Afza, T., & Shabbir, M. S. (2013). Financial development, domestic savings and poverty reduction in Pakistan: using cointegration and granger causality analysis. *International Journal of Economics and Empirical Research (IJEER)*, 1(5), 59-73.

Abstract:

The aim of the paper is to explore the association between financial development, domestic savings and poverty in case of Pakistan. The study has employed annual time series data over the period of 1971-2005. The ARDL bounds testing approach has been used for cointegration and Vector Error Correction Model (VECM) for the direction of causality for long-and-short runs. Unit root problem is handled by the use of Ng-Perron unit root test. Our results indicate that feedback effect is found between financial development and poverty reduction in the long run but strong causality is running from fall in poverty to financial development in the short run. This paper opens up new directions for policy makers to reduce poverty with the help of vibrant financial sector in the country.

URL: <http://econpapers.repec.org/article/iijournal/v3a13ay3a20133ai3a53ap3a59-73.htm>

9. Leitão, N. C., & Shahbaz, M (2013). Carbon dioxide emissions, urbanization and globalization: a dynamic panel data. *Economic Research Guardian*.3 (1). 22-32

Abstract:

This study investigates the existence of environmental Kuznets curve (EKC) for carbon dioxide (CO₂) emissions and its relationship with economic growth, energy consumption and globalization over the period of 1990-2010. We apply a dynamic panel data (GMM-system estimator) using the data of selected 18 countries. This estimator permits to solve the problems of serial correlation, heteroskedasticity and endogeneity for some explanatory variables. The environmental consequences of economic growth are according to environmental Kuznets (EKC) hypothesis. Globalization seems to be a main engine that provides a way to enhance production intensively by utilizing abundant domestic resources efficiently. The energy consumption has positive impact on CO₂ emissions. Urbanization improves environmental quality by lowering CO₂ emissions, i.e an inverted-U shaped relationship between urbanization and CO₂ emissions.

URL: <http://ideas.repec.org/a/wei/journal/v3y2013i1p22-32.html>

10. Tiwari, A. K., Shahbaz, M., & Islam, F. (2013). Does financial development increase rural-urban income inequality?: Cointegration analysis in the case of Indian economy. *International Journal of Social Economics*, 40(2), 151-168.

Abstract:

Purpose – The purpose of this paper is to investigate the impact of financial development on the rural-urban income inequality in India using annual data from 1965 to 2008.

Design/methodology/approach – The Ng-Perron unit root test is utilised to check for the order of integration of the variables. The long run relation is examined by implementing the ARDL bounds testing approach to cointegration.

Findings – The results confirm a relation among the variables. Evidence suggest that financial development, economic growth and consumer prices aggravate rural-urban income inequality in the long run. **Research limitations/implications** – The present study offers fresh insights to policy makers on crafting appropriate policies that reduce rural-urban income inequality in India.

Originality/value – The contribution of this paper is lies in extending the literature in the context of India towards an extensively researched area of rural-urban divide but in time series framework and utilization of a better approach of time series approach, i.e. ARDL. Specifically, to the best of the authors' knowledge, this is the first empirical study to test poverty-finance nexus using the basic principles of the GJ hypothesis and provide evidence of short- and long-run dynamics on the postulated relation for India.

URL: <http://www.emeraldinsight.com/doi/full/10.1108/03068291311283616>

11. Shahbaz, M., Shabbir, M. S., & Butt, M. S. (2013). Does Military Spending Explode External Debt in Pakistan?. *Defence and Peace Economics*. 1-24.

Abstract:

This paper investigates the effect of military spending on external debt in case of Pakistan for the period of 1973–2009. For this purpose, the autoregressive distributed lag bounds testing approach to cointegration is used to examine cointegration among the variables. The ADF, P-P, and ADF-GLS unit root tests are applied to test the integrating order of the variables. The Ordinary Least Square (OLS) and error correction method regressions are used to investigate the marginal impact of military spending on external debt in the long and short run. Our findings indicate the existence of cointegration that confirms the presence of a long-run relationship among military spending, external debt, economic growth, and investment. Further, our results reveal that a rise in military spending increases the stock of external debt; an increase in investment also increases external debt; however, there is an inverse effect of economic growth on external debt. An implication of the findings reported herein is that there

is a need to formulate a comprehensive economic policy for curtailing external debt in case of Pakistan.

URL: <http://www.tandfonline.com/doi/abs/10.1080/10242694.2012.724878#.VAgtn0ekqSQ>

12. Tiwari, A. K., & Shahbaz, M. (2013). Modelling the relationship between whole sale price and consumer price indices: cointegration and causality analysis for India. *Global Business Review*, 14(3), 397-411.

Abstract:

In this study we attempted to analyze the static and dynamic causality between producers' prices measured by WPI and consumers' prices measured by CPI in the context of India. We did our analysis in the framework of time series and for analysis, we applied ARDL bounds testing approach to cointegration and robustness of ARDL approach is examined through Johansen and Juselius (1990) maximum likelihood approach over the period of 1950-2009. We found the evidence of bidirectional causality between WPI and CPI in both cases i.e., in the short-run and long-run. Furthermore, outside sample forecast analysis reveals that in India, WPI leads CPI. This implies that WPI is determined by market forces and also a leading indicator of consumers' prices and inflation. This gives an indication to the Indian policy analysts to control for factors affecting WPI in order to have control on CPI since CPI is used for indexation purposes for many wage and salary earners including government employees and hence it will be helpful in cutting down the excess government expenditure.

URL: <http://mpa.ub.uni-muenchen.de/27333/>

13. Shahbaz, M., Lean, H. H., & Farooq, A. (2013). Natural gas consumption and economic growth in Pakistan. *Renewable and Sustainable Energy Reviews*, 18, 87-94.

Abstract:

Natural gas is a dominant fuel in Pakistan. It offers the cheapest and a cleaner alternative source of energy. This paper examines the relationship of natural gas consumption and economic growth in Pakistan. We include capital, labor and exports in the model with multivariate framework. The ARDL bounds testing approach to cointegration and innovative accounting approach are employed to investigate the dynamic causality relationships among the variables. We find the existence of long-run relationship among the variables. Natural gas consumption, capital, labor and exports are positively affecting economic growth in Pakistan. Furthermore, we support the natural gas consumption-led-growth hypothesis and suggest that natural gas conservation policies may retard economic growth.

URL: <http://www.sciencedirect.com/science/article/pii/S1364032112005308>

14. Shahbaz, M., Hooi Lean, H., & Kalim, R. (2013). The impact of foreign direct investment on stock market development: evidence from Pakistan. *Economics research*, 26(1), 17-32.

Abstract:

Developing countries are witnessing changes in the composition of capital flows in their economies due to the expansion and integration of the world equity market. This paper investigates the impact of foreign direct investment on the stock market development in Pakistan. The key interest revolves around the complementary or substitution role of foreign direct investment to the development of stock market. ARDL bounds testing approach to cointegration and ECM are employed for the analysis. Our results support the complementary role of foreign direct investment to the stock market development in Pakistan. Moreover, domestic savings, income and inflation are the other macroeconomic variables that affect the development of stock market in Pakistan.

URL: http://hrcak.srce.hr/index.php?show=clanak&id_clanak_jezik=152899

15. Farooq, A., Shahbaz, M., Arouri, M., & Teulon, F. (2013). Does corruption impede economic growth in Pakistan?. *Economic Modelling*, 35, 622-633.

Abstract:

The present study reinvestigates the impact of corruption on economic growth by incorporating financial development and trade openness in growth model in case of Pakistan. We have used time series data over the period of 1987–2009. We have applied structural break unit root test to test the integrating order of the variables. The structural break cointegration has also been applied to examine the long run relationship between the variables. The long run relationship between the variables is validated in case of Pakistan. We find that corruption impedes economic growth. Financial development adds in economic growth. Trade openness stimulates economic growth. The causality analysis has exposed the feedback effect between corruption and economic growth and same inference is drawn for trade openness and corruption. Trade openness and economic growth are interdependent. Financial development Granger causes economic growth implying supply-side hypothesis in case of Pakistan.

URL: <http://www.sciencedirect.com/science/article/pii/S0264999313003350>

16. Shahbaz, M., Kumar Tiwari, A., Ozturk, I., & Farooq, A. (2013). Are fluctuations in electricity consumption per capita transitory? evidence from developed and developing economies. *Renewable and Sustainable Energy Reviews*, 28, 551-554

Abstract:

This paper investigates the unit root properties of electricity consumption per capita of 67 developed and developing countries for the period 1971–2010. To examine the stationary properties of electricity consumption per capita, we have adopted Lee and Strazicich (2003, 2004) test of unit root that allows us to test for at most two endogenous breaks and uses the Lagrange Multiplier (LM) test statistics. Results show that 65 country series reject the unit root null hypothesis except for 2 country series. Thus, our empirical findings provide significant evidence that electricity consumption per capita is stationary in almost all countries considered. The stationarity of electricity consumption per capita indicates that it should be possible for the series to forecast future movements in the energy consumption based on the past behaviors of the series.

URL: <http://www.sciencedirect.com/science/article/pii/S1364032113005479>

17. Shahbaz, M., Shabbir, M. S., Malik, M. N., & Wolters, M. E. (2013). An analysis of a causal relationship between economic growth and terrorism in Pakistan. *Economic Modelling*, 35, 21-29.

Abstract:

The present study investigates the causal relationship between terrorism and economic growth in Pakistan by incorporating capital and trade openness in production function. The study covers the time period of 1973–2010. The ARDL bound testing approach has been applied to cointegration to examine the long-run relationship between terrorism and economic growth. The VECM Granger causality approach is used to test the direction of causality between terrorism and economic growth. Our empirical results confirm the existence of long-run relationship between terrorism and economic growth. The Granger causality analysis indicates that terrorism is Granger cause of economic growth. The feedback effect is found between terrorism and trade openness. The relationship between terrorism and capital is bidirectional.

URL: <http://www.sciencedirect.com/science/article/pii/S0264999313002496>

18. Shahbaz, M., Shabbir, M. S., & Butt, M. S. (2013). Effect of financial development on agricultural growth in Pakistan: New extensions from bounds test to level relationships and Granger causality tests. *International Journal of Social Economics*, 40(8), 707-728.

Abstract:

This study investigates the relationship between financial development and agriculture growth employing Cobb-Douglas function which incorporates financial development as an important factor of production for the period 1971-2011. The ARDL bounds testing approach to cointegration is applied to examine long run relationship between the variables. The direction of causality is detected by VACM Granger causality test and robustness of causality results is tested through innovative accounting approach (IAA). Our findings confirm that the variables

are cointegrated for equilibrium long run relationship between agriculture growth, financial development, capital and labor. The results indicate that financial development has a positive effect on agricultural growth. This implies that financial development plays its significant role in stemming agricultural production and hence agricultural growth. The capital use in the agriculture sector also contributes to the agricultural growth. The Granger causality analysis reveals bidirectional causality between agricultural growth and financial development. The robustness of these results is confirmed by innovative accounting approach (IAA). This study has important policy implications for policy making authorities to stimulate agricultural growth by improving the efficiency of financial sector.

URL: <http://www.sciencedirect.com/science/article/pii/S0264999313002496>

19. Sarwar, F., & Abbasi, A. S. (2013). An In-Depth Analysis of Women's Labor Force Participation in Pakistan. *Middle-East Journal of Scientific Research*, 15(2), 208-215.

Abstract:

Women in Pakistan are subjected to severe employment discrimination. Theorist claims that female employment has positive impact on country economy and women wellbeing. Labor force data from Pakistan bureau of statistics and World Bank suggests that labor force participation of women in Pakistan, as percentage of total women workforce and percentage of total countries work force is below par when compared to international standard and developed countries. Moreover majority of women are accumulated in informal sectors mostly agriculture. The reason for this gender discrimination is ingrained in political, legal, economic and cultural factors that adversely affect the status of women, limit the employment opportunities and employment options for women. It is suggested that holistic change approach should be initiated in country by the country, supported by media and accepted by masses.

URL: [http://idosi.org/mejsr/mejsr15\(2\)13/6.pdf](http://idosi.org/mejsr/mejsr15(2)13/6.pdf)

20. Abbasi, S. A., & Alvi, K. A. (2013). Impact of employee characteristics and their performance on customer satisfaction. *Sci. Int.(Lahore)*, 25(2), 387-394.

Abstract:

This study aims to examine the impact of employee characteristics (empathy, expertise and reliability) on employee performance and customer satisfaction in a mobile phone service provider of Pakistan. In addition to that study also seeks to investigate the influence of employee performance on customer satisfaction. Findings of the study indicate that employee characteristics and employee performance positively persuade customer satisfaction in a mobile phone service provider of Pakistan. Moreover, empathy and reliability positively

influence employee performance, whereas, expertise and reliability strongly impact customer satisfaction. A survey research was carried out in a mobile phone service provider of Pakistan with the help of structured questionnaire. Questionnaire consisted of 37 items adopted from previous studies to observe employee characteristics, employee performance and customer satisfaction. This study evaluated impact of three employee characteristics including empathy, reliability and expertise. Current study is adding to the body of literature by assessing the relationship of these employee characteristics, employee performance and customer satisfaction in a business organization in Pakistani cultural context.

URL: <http://www.ciitlahore.edu.pk/Papers/Abstracts/539-8588355598103049558.pdf>

21. Rana, A. H., & Abbasi, A. S. (2013). Impact of talent management and employee turnover intention on organizational efficiency – a case of telecommunication sector of Pakistan. *Sci.Int(Lahore)*,25(3),637-642,

Abstract:

Today only those organizations can survive who serve better than their competitors. This can happen only if organizations can manage their people effectively and efficiently. Current study examines influence of talent management (TM) and employee turnover intention (ETO) on organizational efficiency (OE) in telecommunication sector of Pakistan (TSP). Simple Random Sampling technique was used. Structured questionnaires were distributed to 350 employees working in franchises, regional offices, service centers and business centers currently operated in Lahore. 273 questionnaires were returned filled. SPSS 17 was used to analyze the data. Study results indicate that by reducing ETO organizations can enhance their efficiency. Research results revealed an interesting dimension of talent management which reflects negative relationship with organizational efficiency in TSP. This finding exposes that TM sometime elevates ETO and reduces the OE. TSP needs to reduce employee turnover rate by managing the talent properly to elevate OE.

URL: <http://www.sci-int.com/pdf/202512997537-637-642-Aiza-TM%20&%20OE-Sci%20Int-GP-Final.pdf>

22. Imam, A., Abbasi, A. S., Muneer, S., & Qadri, M. M. (2013). Organizational Culture and Performance of Higher Educational Institutions: the Mediating Role of Individual Readiness for Change. *European Journal of Business and Management*, 5(20), 23-34.

Abstract:

This study is an enquiry to find out relationship between organizational culture and organizational performance of higher educational institutions (HEIs) of Pakistan with mediating

role of individual readiness for change. The bottom line of the research is to determine the significance of organizational culture and individual readiness for change in academic leaders that leads to heightened performance of educational institutions. Further addition to the study is comparison of different dimensions of organizational culture with organizational performance with mediating role of individual readiness for change. A structured questionnaire was used to collect the data from 307 doctorate degree holding faculty members working in universities/HEIs of Pakistan. The findings from this research supported that individual readiness for change acts as partial mediator between the relationship of organizational culture and organizational performance. The study's findings provide understanding about the relationship between different dimensions of organizational culture with organizational performance. Study helps in providing guidelines to the policy makers and leadership of universities that how organizational culture and individual readiness for change can help to elevate organizational performance, increase productivity and enhance quality research output to secure respectable place in international research arena and ranking of HEIs.

URL: <http://www.iiste.org/Journals/index.php/EJBM/article/view/7295>

23. Idrees, R. N., Abbasi, A. S., & Waqas, M. (2013). Systematic Review of Literature on Workforce Diversity in Pakistan. *Middle-East Journal of Scientific Research*, 17(6), 780-790.

Abstract:

The purpose of the research is to study literature on different work force diversity dimensions of Pakistan. The objective of this conceptual analysis is to discuss methodology, findings and identify limitations in research work under review and point towards unresolved issues, if any that can pave the way for further research in the field of work force diversity management in Pakistan. Workforce of Pakistan is not delivering effectively, which, among other factors, may be attributed to lack of desired level of diversity in terms of age, culture and gender. Corporations are experiencing problems due to the absence or in-adequate application of diversity management policies while maintaining relationship with different stakeholders (including colleagues, customers, suppliers etc). Establishing a clear differentiation between the public and private sector organizations in Pakistan is also an area lacking due research coverage in the past. Research gap is evident from the fact that not a single study has been conducted to analyze and compile a critical review of workforce diversity literature in Pakistan. Why work force diversity management is not effectively applicable in all types of organizations in Pakistan? Why gender diversity in work force is not given due consideration to improve organizational effectiveness? This is a qualitative study involving review of previous literature on work force diversity in Pakistan. For this purpose, relevant rules, laws, ordinances, notifications, reports and scholarly research papers have been analysed to better understand and assess the need for a diversified work force. The data has been accessed from authentic

sources and indicated accordingly. The conclusions have been drawn using deduction method. In private organizations, female employees are discriminated more than the male employees as compared to public sector organizations. Heterogeneity in workgroup is a key driver in making more innovative and effective decision. Owners and managers with sound educational background and commitment work for diversity.

URL: [http://idosi.org/mejsr/mejsr17\(6\)13/14.pdf](http://idosi.org/mejsr/mejsr17(6)13/14.pdf)

24. Awan, U., & Abbasi, A. S. (2013). Environmental Sustainability through Determinism the Level of Environmental Awareness, Knowledge and Behavior among Business Graduates. *Research Journal of Environmental and Earth Sciences*, 5(9), 505-515.

Abstract:

The study aims to examine the relationship between demographic factors such as gender, income and occupation with the environmental awareness, knowledge and behavior. Data was collected through self-administrated questionnaires from students of business studies of leading business schools in Lahore. The data were analyzed through using t-statistic test and ANOVA to analyze the relationships and their effect of different demographic factors on the environmental awareness, knowledge and behavior. The result of this survey shows that the students with high income level are more environmentally knowledge able from those students whose income is less. Parents' occupation has significant impact on the overall environmental awareness. The research implications and need of future studies are also present in the study.

URL: http://www.researchgate.net/publication/258023628_Environmental_Sustainability_through_Determinism_the_Level_of_Environmental_Awareness_Knowledge_and_Behavior_among_Business_Graduates/file/50463526a27ded9d48.pdf

25. Sarwar, F., & Abbasi, A. S. (2013). An In-Depth Analysis of Women's Labor Force Participation in Pakistan. *Middle-East Journal of Scientific Research*, 15(2), 208-215.

Abstract:

Women in Pakistan are subjected to severe employment discrimination. Theorist claims that female employment has positive impact on country economy and women wellbeing. Labor force data from Pakistan bureau of statistics and World Bank suggests that labor force participation of women in Pakistan, as percentage of total women workforce and percentage of total countries work force is below par when compared to international standard and developed countries. Moreover majority of women are accumulated in informal sectors mostly agriculture. The reason for this gender discrimination is ingrained in political, legal, economic and cultural factors that adversely affect the status of women, limit the employment opportunities and employment options for women. It is suggested that holistic

change approach should be initiated in country by the country, supported by media and accepted by masses.

URL: [http://idosi.org/mejsr/mejsr15\(2\)13/6.pdf](http://idosi.org/mejsr/mejsr15(2)13/6.pdf)

26. Waqas, M., Abbasi, A. S., & Idrees, R. N. (2013). Academic Performance of Undergraduates in Universities of Pakistan. *Middle-East Journal of Scientific Research*, 16(1), 55-61.

Abstract:

Women in Pakistan are subjected to severe employment discrimination. Theorist claims that female employment has positive impact on country economy and women wellbeing. Labor force data from Pakistan bureau of statistics and World Bank suggests that labor force participation of women in Pakistan, as percentage of total women workforce and percentage of total countries work force is below par when compared to international standard and developed countries. Moreover majority of women are accumulated in informal sectors mostly agriculture. The reason for this gender discrimination is ingrained in political, legal, economic and cultural factors that adversely affect the status of women, limit the employment opportunities and employment options for women. It is suggested that holistic change approach should be initiated in country by the country, supported by media and accepted by masses.

URL: [http://idosi.org/mejsr/mejsr15\(2\)13/6.pdf](http://idosi.org/mejsr/mejsr15(2)13/6.pdf)

27. Awan, U., Waqas, M., & Naqvi, I. H. (2013). Balanced Human Resource Management Averted Unions in Private Sector of Pakistan. *Middle-East Journal of Scientific Research*, 16(6), 860-864.

Abstract:

Employee unions usually remain counterproductive for private organizations. This review of literature examines the role of Human Resource Management (HRM) practices between the employee unions and organization requirements. Literature review method adopted to critically analyze the existing literature through secondary resources to see the ways to avert the role of unionization from organizations. The objective of the paper is to address the gap in literature, how HRM averts unionization in private organizations. It concluded that the unionization can be averted through effective HRM that ensures better practices fulfilling needs of both the employees and organization

URL: http://www.academia.edu/4883035/Balanced_Human_Resource_Management_Averted_Unions_in_Private_Sector_of_Pakistan

28. Altaf, A & Naqvi, I. H. (2013). Employee Commitment enhances Team Efficacy: Empirical Evidence on Telecom Sector of Pakistan. *World Applied Sciences Journal*, 22 (8), 1044-1049.

Abstract:

The current study envisioned to examine the relationship between employee commitment and team efficacy in the Telecom Sector of Pakistan which is not discovered yet. Data was gathered from 65 sales teams from five telecom operators. Based on results of statistical analysis by using Spearman correlation and Regression, the study was confident and substantiated its hypotheses that employee commitment is an important predictor of team efficacy. Results portrayed that employee commitment and team efficacy were positively and significantly correlated. The current study contributes to theory and practice with an improved understanding on significance of transformational leadership in keeping teams effective and committed with organization.

URL: [http://www.idosi.org/wasj/wasj22\(8\)13/2.pdf](http://www.idosi.org/wasj/wasj22(8)13/2.pdf)

29. Idrees, R. N., Naqvi, I. H., & Riaz, A. (2013). Monetization of Perks of Civil Servant in Pakistan Is Not a Universal Solution. *World Applied Sciences Journal*, 22(8), 1032-1043.

Abstract:

Introduction Monetization of perks and benefits is expected to be a cost effective approach for providing benefits to employees in an organization and minimizing administrative overheads and hassles. Problem: The monetization of perks and benefits is not equally feasible and applicable in government organizations as it happens for private companies because it can oblige civil servants to be dependent on external service providers while they should be immune from such dependencies on public. Hypothesis: Monetization of perks for civil servants is not adoptable for all types of bureaucracy in Pakistan. Methodology: This is a qualitative study which analysed relevant rules, laws, ordinances, notifications, reports and ongoing necessary measures of Pakistani government's commissions for improving the compensation structure in the government departments especially of the senior civil servant using secondary data accessed from authentic sources. It employed deduction method for reaching conclusions. Finding and Results: Government of Pakistan is inclined towards monetization of perks & benefits for the senior civil servants as part of its civil service reforms imitating private sector and existing trend in the world. However, considering varying degree of monetization policy effectiveness at different civil service departments/ set up in Pakistan, the situation does not seem to be encouraging for monetization. Recommendations are contributed to prevent sensitive institutions (involving greater degree of public dealing like judiciary, income tax, Police etc.) forecasting the probable adverse effect of monetization of perks in such sensitive public service institutions and limit it to public sector where it suits.

URL: <http://www.ciitlahore.edu.pk/Papers/Abstracts/538-8588299815047430808.pdf>

30. Khan, M., Husnain, M. I. U., Mahmood, H. Z., & Akram, W. (2013). Understanding Pesticide Use Safety Decisions: Application of Health Behavior Theory. *American-Eurasian J. Agric. & Environ. Sci.*, 13 (4), 440-448

Abstract:

Pesticide associated health effects are serious public concerns in Pakistan. Therefore, understanding of farmer's risk perception and safety behavior is important for appropriate policy interventions. This study sought help from social psychology to explain farmer's safety behavior. Referencing Health Belief Model from social psychology, it examined "whether or not adverse health experiences play a part in shaping farmer's attitude and safety behavior". The research has exhibited a strong support for the hypothesis. The results of the study indicated that there is significant positive relationship between health effects experienced by the farmers due to the pesticide exposure and their risk perception toward the seriousness of health effects. Moreover, a strong positive relationship was also found between hazardous health experiences from pesticides and the use of safety measures. This implies that to improve awareness, specific and relevant information regarding the health and environmental risks of using pesticide should be provided to farmers through various training programs. The government must design effective outreach programs through farmer field schools, electronic and print media unleashing the health risk of pesticide use, averting behavior and better management of pesticides.

URL: [http://www.idosi.org/aejaes/jaes13\(4\)13/3.pdf](http://www.idosi.org/aejaes/jaes13(4)13/3.pdf)

31. Khan, M., Akhtar, S., Mehmood, H. Z., & Muhmood, K. (2013). Analysing Skills, Education and Wages in Faisalabad: Implications for Labour Market. *Elixir Soc. Sci.* 55A, 13356-13361

Abstract:

This study discusses skills of workers, especially educational attainment and technical and vocational training capacity and its relationship with wages in district Faisalabad. The analysis highlights the need to promote technical and vocational skills and education of labour force through greater investment on training programs so that male and female productivity could be increased. Education and vocational training of female needs to be increased in order to increase labour force participation rate of women in the district. Furthermore, education reforms especially in technical and vocational education are necessary which needs to be closely linked to the requirements of the domestic industry, service and agriculture sector in the district.

URL: [http://www.elixirpublishers.com/articles/1364388892_55A%20\(2013\)%2013356-13361.pdf](http://www.elixirpublishers.com/articles/1364388892_55A%20(2013)%2013356-13361.pdf)

32. Shahbaz, M., Solarin, S. A., Mehmood, H., & Arouri, M. (2013). Does Financial Development Reduce Co2 Emissions in Malaysian Economy? A time series analysis. *Economic Modelling.* (35), 145-152

Abstract:

This study deals with the question whether financial development reduces CO₂ emissions or not in case of Malaysia. For this purpose, we apply the bounds testing approach to cointegration between the variables. We establish the presence of significant long-run relationships between CO₂ emissions, financial development, energy consumption and economic growth. The empirical evidence also indicates that financial development reduces CO₂ emissions. Energy consumption and economic growth add in CO₂ emissions. The Granger causality analysis reveals the feedback hypothesis between financial development and CO₂ emissions, energy consumption and CO₂ emissions and, between CO₂ emissions and economic growth.

URL: <http://www.sciencedirect.com/science/article/pii/S0264999313002551>

33. Mehmood, H., Ali, A., & Chani, M. I. (2013). Determinant of Aggregate Imports Demand Function: A Case of Tunisia. *International Journal of Economics and Empirical Research*. 1(6), 74-82

Abstract:

Purpose: The objective of present study is to examine the role of import demand function for Tunisia. Methodology: We utilize Autoregressive Distributed Lag (ADRL) to bound testing approach to cointegration. The time period include for this purpose starts from 1980 and ends at 2009. Findings: The overall results indicate that long run relationship exist among import demand, household consumption and exports in Tunisia. Furthermore, import demand of Tunisia is highly elastic for final consumption of household and exports of Tunisia but it is inelastic in case of investment as well as relative prices in long run. But in short run, import demand reveals that inelastic behavior relative to final consumption of household, domestic investment, exports, and relative prices in Tunisia. Recommendations: Our results provide new insights for policy to reconsider the import demand function in Tunisia.

URL: http://www.tesdo.org/shared/upload/pdf/papers/IJEER,%201_6_,%2074-82.pdf

34. Abdullah, I., Umair, T., Rashid, Y., & Naeem, B. (2013). Developments on Balanced Scorecard: A Historical Review. *World Applied Sciences Journal*, 21(1), 134-141.

Abstract:

Balanced Scorecard is considered as the world widely used Performance Management System by organizations. Around 57% organizations of the world are using the Balanced Scorecard tool for improving their Organizational Performance [1]. This technique of performance evaluation and management was coined by the Kaplan and Norton in 1992. From that date to 2012 a lot of work has been done by the academicians and practitioner on the Balanced Scorecard. This study is summarizing the major studies conducted on Balanced Scorecard from 1992 to 2012. Summing up all the criticism and appreciations on Balanced Scorecard, the study is suggesting

some guidelines for improving the Balanced Scorecard in the light of previous researches conducted on Balanced Scorecard.

URL: [http://idosi.org/wasj/wasj21\(1\)13/20.pdf](http://idosi.org/wasj/wasj21(1)13/20.pdf)

35. Rashid, Y., & Umair, U. (2013). Effect of Organizational Learning and Knowledge Management Practice of Organizational Performance. *Journal of Basic and Applied Scientific Research*, 21(1), 134-141. (Abstract is not found)

36. Waheed, Z. (2013). Facilities Change Management. *Facilities*, 31. (Abstract is not found)

37. Waheed, Z. (2013). How to Write a Historic Structure Report. *Facilities*, 31. (Abstract is not found)

38. Umair, T., Abdullah, I., Shah, F. S & Rashid, Y. (2013). Effective of Cognitive Diversity in the Top Management on the Firm Performance. *Journal of Basic and Applied Scientific Research*, 4(3).

Abstract:

The aim of the study is to explore about the relationship of cognitive diversity in top management and job performance of the firm. For this purpose different studies and researches have been consulted. On the basis of the reviewed literature, study is attempting to answer the questions, that whether there any relationship exists in the cognitive diversity and performance of the firm? If yes, then how cognitive diversity in upper level management affect organizational performance.

URL: [http://textroad.com/pdf/JBASR/J.%20Basic.%20Appl.%20Sci.%20Res.,%203\(4\)440443,%202013.pdf](http://textroad.com/pdf/JBASR/J.%20Basic.%20Appl.%20Sci.%20Res.,%203(4)440443,%202013.pdf)

39. Ali, I., & Rehman, K. U. (2013). Stock Selection Behavior of Individual Equity Investors' in Pakistan. *Middle-East Journal of Scientific Research*, 15(9), 1295-1300.

Abstract:

This study examines the stock selection behavior of individual equity investors in Pakistan. The study provides very important information to investment advisor regarding stock selection behavior of small equity investors in Pakistan. The understanding of investors' behavior also enables equity market regulators to improve regulator environment that best suits the stakeholders. It also provides pertinent information to corporations listed in stock markets of Pakistan to attract investors. The study identifies stock attributes including dividend, price trends and volatility, firm's status in the market, source of recommendation, corporate reputation, corporate social performance, firm's visibility in the media having significant on stock selection behavior of individual equity investors in Pakistan.

URL: [http://www.idosi.org/mejsr/mejsr15\(9\)13/15.pdf](http://www.idosi.org/mejsr/mejsr15(9)13/15.pdf)

40. Riaz, A., Idrees, R. N., & Imran, A. (2013). Employees' Belief Regarding Training Benefits and Organizational Commitment: A Case in Banking Sector of Pakistan. *Middle-East Journal of Scientific Research*, 16(3), 310-318.

Abstract:

The purpose of this research is to study the relationship between Employees' belief about training benefits including personal, job and career related benefits and their impact on organizational commitment in banking sector of Pakistan. The empirical analysis of this study will help management to learn how they can use training programs particularly designing and implementation phases as effective tactical instrument to enhance commitment level of employees in this period of recession. Workforce of Pakistan is not delivering effectively, which, among other factors, may be attributed to lack of desired level of training (designing and implementation) and career development. Corporations are experiencing problems due to the absence or inadequate application of training management policies while maintaining its relationship with commitment level. Establishing employees' belief with respect to training benefits and its link with commitment in the banking sector of Pakistan is also an area lacking due research coverage in the past. It has been tested that employee's belief with regard to (1) personal benefits; (2) career related benefits; and (3) job-related benefits of training is positively linked with organizational commitment. This is a quantitative study measuring belief of employees for training benefits and its effect on their commitment level. For this purpose, survey was conducted from 155 officers rank employees on the basis of probability sampling technique from banks of two major cities (Lahore and Faisalabad) of Pakistan. The results include that there is significant positive relationship between employee who are having positive attitude towards training as they perceive that they will get different benefits from training and who expect that they will get benefits by participating in training programs, they are likely to be more committed with their employers than those who perceive training a leisure activity.

URL: [http://www.idosi.org/mejsr/mejsr16\(3\)13/1.pdf](http://www.idosi.org/mejsr/mejsr16(3)13/1.pdf)

41. Cheema, F (2013). Impact of rewards on Organizational performance. *JBASR*, 3(5) (Abstract is not found)

42. Farooq, U (2013). Impact of rewards on Organizational performance. *JBASR*, 3(5) (Abstract is not found)

43. Malik, M. E., Naeem, B., & Munawar, M (2013). Impact of Integrated Marketing Communication on Brand Loyalty: Brand Image as Mediator . *European Journal of Scientific Research*, 100(2) (Abstract is not found)

44. Malik, M. E., Naeem, B., & Idress, A (2013). Developing Pharmaceutical Sales Force Collective Psychological Capital through Group Authentic Leadership. *American Journal of Scientific Research*, (91)

Abstract:

Most scholarly work on collective psychological capital was undertaken in China and US context. However, empirical evidence of theoretical relationship between group leader's authentic leadership (AL), an emerging leadership style, and group collective psychological capital (CPsyCap) is scarce pertinently in pharmaceutical selling context of Pakistan. To address the call of research in this domain we explored whether or not group authentic leadership and its characteristics have any role in building CPsyCap of pharmaceutical sales force groups operating in Lahore region of Pakistan. Bivariate and stepwise multiple regression analyses of the data, collected through questionnaire from 55 sales force groups of 16 multinational pharmaceutical companies, revealed that group leader's authentic leadership and its all characteristics, except internalized moral perspective, had significant moderate impact in fostering group CPsyCap. Implications for practice and research are also presented.

URL: http://www.americanjournalofscientificresearch.com/issues/AJSR_91.html

45. Malik, M. E., Naeem, B., & Munawar, M. (2013). Role of Integrated Marketing Communication in Customer Satisfaction and Brand Trust. *American Journal of Scientific Research*, (91). (Abstract is not found)

46. Malik, M. E., Naeem, B., & Munawar, M. (2013). What in authentic leadership drives sales force psychological capital facets. *American Journal of Scientific Research*, 3(114).

Abstract:

The objective of the study was to empirically ascertain the role of group level authentic leadership sub-constructs (such as self-awareness, relational transparency, internalized moral perspective and balanced processing) in building group level psychological capital facets (such as hope, self-efficacy, optimism and resilience). Structured survey Questionnaire was used to collect the data on the variables of interest. Regression analyses of data of 55 pharmaceutical sales force groups, revealed that self-awareness and balanced processing but not internalized moral perspective and relational transparency, had significant positive impact on sales force group's self-efficacy, hope and resilience whereas only self-awareness significantly improved group's optimism. Implications of study findings for leadership of pharmaceutical companies and researchers are entailed, too.

URL: http://www.europeanjournalofscientificresearch.com/issues/EJSR_116_4.html

47. Ehsan, S., Tabassum, N., Akram, Z., & Nasir, R. (2013). Role of Insider and Individual Ownership Structure in Dividend Payout Policy: Evidence from Pakistan. *Middle-East Journal of Scientific Research*, 17(9), 1316-1326.

Abstract:

Corporate dividend policy has received a generous amount of attention by financial researchers since the last five decades. Researchers found dividends to be one of the important factors defining the firm's value. There are various cognitive factors of the dividend policy in the firms

and among these, the ownership structure is found to be the most influential in devising the dividend policy in Pakistan. An agency theory plays a crucial role in explaining the relationship of dividend policy and ownership structure. This study articulates the relation of insider ownership and individual ownership with dividend payout policy of the firm. For this purpose data has been collected from 100 non-financial firms listed at Karachi Stock Exchange (KSE 100 index) for the period of 2007 to 2011. Ordinary Least Square regression technique has been used to reveal empirical results. The results of current study revealed that insider ownership and individual ownership both have a significant negative influence on dividend payments. Profitability is significant and positively related with dividend payouts. Moreover, size and leverage are negatively related to corporate dividend policy.

URL: [http://www.idosi.org/mejsr/mejsr17\(9\)13/17.pdf](http://www.idosi.org/mejsr/mejsr17(9)13/17.pdf)

48. Bilal, K., Nawaz, H., & Khan, A. (2013). Impact of human capital growth on FDI: An econometric analysis.

Abstract:

Human capital have become a more sturdy as countries vie for investors investment in an over saturated global market. Most research on foreign direct investment concentrates on social bonds, business relationships and regionalization issues. Little research considers importance of human resource capacity building and its importance for investors within relationships. In this research, we will use secondary data about FDI in Pakistan and human ingeniousness. The result should assist marketers to ascertain whether human capital perceived as important tool for FDI or whether prerequisite for investors. First, conceptual framework was built from the literature included theoretical papers, comparative research reports, and grey literature. Secondly, to investigate the impact of human capital Ingeniousness on FDI, ARDL approach applied on the data collected over the period of 2002-2010. ARDL approach to Cointegration analysis based on ARDL used to estimate relationships among variables. Test results shows that there exists the long run cointegrating relationship among human capital ingeniousness demand, GDP growth and foreign direct investment inflow. This study presents positive and significant impact of human Ingeniousness on FDI of Pakistan. Furthermore, the results indicate that technical bonds interact with social bonds for investor's solicitation. Human capital allurements are more effective tool in attracting investors attraction and being consider important than those with lower level of Ingeniousness human resources, but may led to more distraction of FDI.

URL: <http://www.aocrj.org/wp-content/uploads/2013/08/Paper-abstract.pdf>

49. Tabassum, N., Kaleem, A., & Nazir, M. S. (2013). Impact of Real Earnings Management on Subsequent Financial Performance. *Middle-East Journal of Scientific Research*, 17(4), 551-560.

Abstract:

This study examines the impact of Real Earnings Management on consequent financial performance. Three proxies are taken for real earnings management; abnormal discretionary expense, abnormal production cost and abnormal operating cash flows and proxies for financial performance are taken as; Return on Asset (ROA), Return on Equity (ROE) and Earning per Share (EPS) and Price to Earnings ratio (PE). Manufacturing sector of Pakistan is selected for analysis and data is collected from year 2004 to 2011. Generalized Least Square Regression has been applied for analysis. It is found that impact of real earnings management on financial performance is negative.

URL: [http://idosi.org/mejsr/mejsr17\(4\)13/22.pdf](http://idosi.org/mejsr/mejsr17(4)13/22.pdf)

50. Bodla, M. A., & Danish, R. Q. (2013). The Use of Influence Tactics in Politicized Organizations: A Look from Gender Perspective. *Information Management & Business Review*, 5(9).

Abstract:

The politics is one of the unavoidable constituent of organizational climate in all types of business organizations. Antecedents and consequences of organizational politics and use of influence strategies are very important to consider in an organizational setup when allocating resources and satisfying the interdependencies. However, little is known about the differences among males and females how they use these influence tactics. In this review, the authors have proposed a model which explicitly elaborates the view how the gender differences interact with perceptions of organizational politics when it impacts on job performance. The previous literature supports the fact that males and females differ significantly on perceptions of politics and work performance relationship. The proposed theoretical model for research in multiple dimensions, i.e. power and politics, influence tactics and political behavior may unveil the players' behaviors in politicized organizations.

URL: <http://connection.ebscohost.com/c/articles/92700369/use-influence-tactics-politicized-organizations-look-from-gender-perspective>

51. Bodla, M. A., Ali, H., & Danish, R. Q. (2013). Role of Spiritual Leaders in Enhancing Employee's Performance. *Journal of Basic and Applied Scientific Research*.3(3), 117-122

Abstract:

Increase in interest in workplace spirituality cannot be questioned. As the global changes are taking place, organizations are also affected by those changes. Due to different economic and social changes like downsizing, recessions, and scandals etc at workplace, human beings are focusing to take in spiritual characteristics of their lives at the workplace. Employees are trying to create importance and intention of their lives at the workplace. This results in increase in demand of spiritual leadership. Most of studies on leadership spirituality has been conducted in European countries like America, but still neglected in developing countries like Pakistan. So,

present study is carried out on employees of banking sector of Pakistan to empirically investigate the effect of spiritual leadership on individual outcomes. This research will result in some practical implications for banking sector of Pakistan.

URL:http://www.researchgate.net/publication/259042411_Role_of_Spiritual_Leaders_in_Enhancing_Employee's_Performance/file/e0b49529cd9172bdca.pdf

52. Afza, T., & Yusuf, M. U. (2013). The Impact of Mergers on Efficiency of Mutual Funds in Pakistan. *Caspian Journal of Applied Sciences Research*, 2(10).

Abstract:

The study analyzes the impact of mergers in mutual fund industry of Pakistan in terms of cost and profit efficiency by using parametric technique of Stochastic Frontier Analysis for all the merger transactions completed during 2001-2006. The input and output variables are defined and determined by assuming intermediation approach. Translog cost function and alternative profit function are assumed to be followed by cost and profit function respectively. Four years event study approach is used for comparing pre and post-merger cost and profit efficiencies of merging entities. The study found 8.77% improvement in cost efficiency of mutual funds, whereas the gain in profit efficiency was 13.6%. Both the results were significant at 10% and 5% level respectively. The study concluded that mutual fund mergers in Pakistan enhanced both cost and profit efficiency of survivors during the study period.

URL:[http://www.cjasr.com/images/manuscripts/2013/10/cjasr-vol2-issue10-pp69-76-ref\(cjasr-13-4-145\)t172.pdf](http://www.cjasr.com/images/manuscripts/2013/10/cjasr-vol2-issue10-pp69-76-ref(cjasr-13-4-145)t172.pdf)

53. Anwar, Z., & Afza, T. (2013). Impact of Governance Indicators on FDI Inflows: Empirical Evidence from Pakistan. *Science International (Lahore)*. (Abstract is not found)

54. Mirza, H. H., & Afza, T. (2013). Does Investor Protection Affect Managements' Decision to Pay Dividend? Evidence from South Asia. *Caspian Journal of Applied Sciences Research*. (Abstract is not found)

55. Nazir, M. S., & Afza, T. (2013). Role of Institutional Shareholders' Activism in Enhancing Firm Performance. *Global Business Review*. (Abstract is not found)

56. Mehmood, Z. H., Khan, M & Hussain, M. I. (2013). Education Infrastructure, Literacy and Food Security Matrix in Pakistani Punjab: A District Level Analysis. *World Applied Sciences Journal. UAE*. . (Abstract is not found)

57. Ahmad, K & Mehmood, H. (2013). Evidence on the Openness-Inflation Puzzle: The Case of Pakistan/ Bangladesh. *Development Studies*. (Abstract is not found)

58. Malik, M. E., Naeem, B., & Munawar, M. (2013). Impact of word of mouth communication on brand loyalty: Empirical Evidence from Telecom sector in Pakistan. *American Journal of Scientific Research*. (Abstract is not found)

59. Khalid, M & Akhter, W. (2013). Impact of Corporate Governance Practices on Financial Distress: Empirical Evidence From Pakistan. *Vidyabharati International Interdisciplinary Research Journal*.2 (2), 6-17 (Abstract is not found)

60. Afza, T & Nazir, M. S. (2013). Audit Committee Characteristics and firm Performance in Pakistan. *Journal of Applied Sciences, Engineering and Technology* (Abstract is not found)

61. Shahbaz, M., Mutascu, M., & Azim, P. (2013). Environmental Kuznets curve in Romania and the role of energy consumption. *Renewable and Sustainable Energy Reviews*, 18, 165-173.

Abstract:

The aim of present study is to probe the dynamic relationship between economic growth, energy consumption and CO₂ emissions for period of 1980–2010 in case of Romania. In doing so, ARDL bounds testing approach is applied to investigate the long run cointegration between these variables. Our results confirm long run relationship between economic growth, energy consumption and energy pollutants. The empirical evidence reveals that Environmental Kuznets curve (EKC) is found both in long-and-short runs in Romania. Further, energy consumption is major contributor to energy pollutants. Democratic regime shows her significant contribution to decline CO₂ emissions through effective implementation of economic policies and financial development improves environment i.e., reduces CO₂ emissions by redirecting the resources to environment friendly projects.

URL: <http://www.sciencedirect.com/science/article/pii/S1364032112005540>

62. Islam, F., Shahbaz, M., Ahmed, A. U., & Alam, M. M. (2013). Financial development and energy consumption nexus in Malaysia: a multivariate time series analysis. *Economic Modelling*, 30, 435-441.

Abstract:

Despite a burgeoning literature on the existence of long run relationship between consumption of energy and economic growth, results on the direction of causality so far, remain elusive. A growing economy needs more energy, which is exacerbated by growing population. Evidence suggests that financial development can reduce energy use by increasing energy efficiency. Economic growth and energy consumption in Malaysia have been rising in tandem over the past several years. The three public policy objectives of Malaysia are: economic progress, population growth and financial development. It is of interest to the policymakers to understand the dynamic interrelation among the stated objectives. The paper

explores the existence of a long run relation among energy use, aggregate production, financial development and population in Malaysia; and causality using the Vector Error Correction Model (VECM). The results suggest that energy consumption is influenced by economic growth and financial development, both in the short and the long run, but the population–energy relation holds only in the long run. The findings have important policy implications for balancing economic growth vis-à-vis energy consumption for Malaysia, as well as other emerging nations.

URL: <http://www.sciencedirect.com/science/article/pii/S0264999312003082>

63. Tiwari, A. K., Shahbaz, M., & Adnan Hye, Q. M. (2013). The environmental Kuznets curve and the role of coal consumption in India: Cointegration and causality analysis in an open economy. *Renewable and Sustainable Energy Reviews*, 18, 519-527.

Abstract:

This study investigates the dynamic relationship between coal consumption, economic growth, trade openness and CO₂ emissions in case of India. In doing so, Narayan and Popp, *Journal of Applied Statistics* 2010; 37:1425–1438, structural break unit test is applied to test the order of integration of the variables. Long run relationship between the variables is tested by applying the ARDL bounds testing approach to cointegration developed by Pesaran et al. *Journal of Applied Econometrics* 2001; 16:289–326. The results confirm the existence of cointegration for long run between coal consumption, economic growth, trade openness and CO₂ emissions. Our empirical exercise indicates the presence of environmental Kuznets curve (EKC) in long run as well as in short run. Coal consumption as well as trade openness contributes to CO₂ emissions. The causality analysis reports the feedback hypothesis between economic growth and CO₂ emissions and same inference is drawn between coal consumption and CO₂ emissions. Moreover, trade openness Granger causes economic growth, coal consumption and CO₂ emissions.

URL: <http://www.sciencedirect.com/science/article/pii/S1364032112005734>

64. Muhammad, S., Qazi M., Adnan, H., & Aviral Kumar, T. (2013). Economic Growth, Energy Consumption, Financial Development, International Trade and CO₂ Emissions, in Indonesia. *Renewable and Sustainable Energy Reviews*, 25, 109-121.

Abstract:

This study examines the linkages among economic growth, energy consumption, financial development, trade openness and CO₂ emissions over the period of 1975Q1-2011Q4 in the case of Indonesia. The stationary analysis is performed by using Zivot-Andrews structural break unit root test and the ARDL bounds testing approach for a long run relationship between the series in the presence of structural breaks. The causal relation between the concerned variable is examined by the VECM Granger causality technique and robustness of causal analysis is tested by innovative accounting approach (IAA). Our results confirm that the variables are cointegrated; it means that the long run relationship exists in the presence of structural break

stemming in the series. The empirical findings indicate that economic growth and energy consumption increases CO₂ emissions, while financial development and trade openness compact it. The VECM causality analysis has shown the feedback hypothesis between energy consumption and CO₂ emissions. Economic growth and CO₂ emissions are also interrelated i.e. bidirectional causality. Financial development Granger causes CO₂ emissions. The study opens up a new policy insights to control the environment from degradation by using energy efficient technologies. Financial development and trade openness can also play their role in improving the environmental quality.

URL: <http://mpra.ub.uni-muenchen.de/43722/>

65. Shahbaz, M., Ozturk, I., Afza, T., & Ali, A. (2013). Revisiting the environmental Kuznets curve in a global economy. *Renewable and Sustainable Energy Reviews*, 25, 494-502.

Abstract:

The present study deals with an empirical investigation between CO₂ emissions, energy intensity, economic growth and globalization using annual data over the period of 1970–2010 for Turkish economy. We applied unit root test and cointegration approach in the presence of structural breaks. The direction of causality between the variables is investigated by applying the VECM Granger causality approach. Our results confirmed the existence of cointegration between the series. The empirical evidence reported that energy intensity and economic growth (globalization) increase (condense) CO₂ emissions. The results also validated the presence of environmental Kuznets curve (EKC). The causality analysis shows bidirectional causality between economic growth and CO₂ emissions. This implies that economic growth can be boosted at the cost of environment.

URL: <http://www.sciencedirect.com/science/article/pii/S1364032113003249>

66. Shahbaz, M., Lean, H. H., & Farooq, A. (2013). Natural gas consumption and economic growth in Pakistan. *Renewable and Sustainable Energy Reviews*, 18, 87-94.

Abstract:

Natural gas is a dominant fuel in Pakistan. It offers the cheapest and a cleaner alternative source of energy. This paper examines the relationship of natural gas consumption and economic growth in Pakistan. We include capital, labor and exports in the model with multivariate framework. The ARDL bounds testing approach to cointegration and innovative accounting approach are employed to investigate the dynamic causality relationships among the variables. We find the existence of long-run relationship among the variables. Natural gas consumption, capital, labor and exports are positively affecting economic growth in Pakistan. Furthermore, we support the natural gas consumption-led-growth hypothesis and suggest that natural gas conservation policies may retard economic growth.

URL: <http://www.sciencedirect.com/science/article/pii/S1364032112005308>

67. Tang, C. F., Shahbaz, M., & Arouri, M. (2013). Re-investigating the electricity consumption and economic growth nexus in Portugal. *Energy Policy*, 62, 1515-1524.

Abstract:

In the previous decades, a number of studies have been conducted to analyse the causal relationship between electricity consumption and economic growth in the Portuguese economy. However, the evidence remains controversial because the previous studies do not provide clear causality evidence. This might be attributed to the omitted variables bias because most previous studies only focus on the relationship between electricity consumption and economic growth in a bi-variate model. This paper attempts to re-investigate the relationship between electricity consumption and economic growth in Portugal using a multivariate model. Based on the bounds testing approach to cointegration and the Granger causality test within the vector error-correction model (VECM), our empirical results confirm the presence of cointegration among the variables. Moreover, there is evidence of bi-directional causality between electricity consumption and economic growth in the short- and long-run. This suggests that energy is an important source of economic growth in Portugal. Therefore, energy conservation policies should not be implemented because it would deteriorate the process of economic growth and development of the Portuguese economy.

URL: <http://www.sciencedirect.com/science/article/pii/S0301421513007167>

68. Solarin, S. A., & Shahbaz, M. (2013). Trivariate causality between economic growth, urbanisation and electricity consumption in Angola: Cointegration and causality analysis. *Energy Policy*, 60, 876-884.

Abstract:

This paper investigates the causal relationship between economic growth, urbanisation and electricity consumption in the case of Angola, while utilizing the data over the period of 1971–2009. We have applied [39](#) and [40](#) unit root tests to examine the stationarity properties of the series. Using the Gregory–Hansen structural break cointegration procedure as a complement, we employ the ARDL bounds test to investigate long run relationships. The VECM Granger causality test is subsequently used to examine the direction of causality between economic growth, urbanisation, and electricity consumption. Our results indicate the existence of long run relationships. We further observe evidence in favour of bidirectional causality between electricity consumption and economic growth. The feedback hypothesis is also found between urbanisation and economic growth. Urbanisation and electricity consumption Granger cause each other. We conclude that Angola is energy-dependent country. Consequently, the relevant authorities should boost electricity production as one of the means of achieving sustainable economic development in the long run.

URL: <http://www.sciencedirect.com/science/article/pii/S0301421513003947>

69. Tang, C. F., & Shahbaz, M. (2013). Sectoral analysis of the causal relationship between electricity consumption and real output in Pakistan. *Energy Policy*, 60, 885-891.

Abstract:

This study uses the annual data from 1972 to 2010 to assess the causal relationship between electricity consumption and real output at the aggregate and sectoral levels in Pakistan. This study covers three main economic sectors in Pakistan namely agricultural, manufacturing and services sectors. Our cointegration results reveal that the variables are cointegrated at the aggregate and sectoral levels. At the aggregate level, we find that there is uni-directional Granger causality running from electricity consumption to real output in Pakistan. At the sectoral level, we find that electricity consumption Granger-causes real output in the manufacturing and services sectors. However, there is no causal relationship between electricity consumption and real output in the agricultural sector. The policy implication of these results is that electricity conservation policies in general would deteriorate the process of economic growth as well as the real output in the manufacturing and services sectors in Pakistan. Nevertheless, we suggest the Pakistani government to implement the electricity conservation policies merely to the agricultural sector because such policies may have less or no adverse impact on its real output.

URL: <http://www.sciencedirect.com/science/article/pii/S0301421513004291>

70. Tiwari, A. K., & Shahbaz, M. (2013). Does defence spending stimulate economic growth in India? A revisit. *Defence and Peace Economics*, 24(4), 371-395.

Abstract:

This study reinvestigates the effect of defence spending on economic growth using Zivot and Andrews and Lee and Strazicich, structural unit root tests and the autoregressive distributed lag bounds testing approach to cointegration in augmented version of Keynesian model for India. Study confirmed long run relationship among variables studied show that economic growth is positively affected by defence spending (also negative impact after a threshold point), investment and trade openness while negatively by interest rate. Granger causality analysis revealed bidirectional causal relationship between defence spending and economic growth as probed by variance decomposition approach.

URL: <http://www.tandfonline.com/doi/abs/10.1080/.VA09d0ekqSQ>

71. Shahbaz, M. (2013). Does financial instability increase environmental degradation? Fresh evidence from Pakistan. *Economic Modelling*, 33, 537-544.

Abstract:

The present study explores the relationship between financial instability and environmental degradation within the multivariate framework using time series data over the period of 1971-

2009 in case of Pakistan. The long run relationship is investigated by the ARDL bounds testing approach to cointegration, and error correction method (ECM) is applied to examine the short run dynamics. The stationary properties of the variables are investigated by applying Saikkonen and Lütkepohl unit root test. Empirical evidence confirms that there exists a long run relationship between both variables and financial instability increases environmental degradation.

URL: <http://www.sciencedirect.com/science/article/pii/S0264999313001776>

72. Ali, I., Khan, S. U. R., & Rehman, I. U. (2013). How corporate social responsibility and corporate reputation influence employee engagement? *Transformation in Business & Economics*, 12. 354-364

Abstract:

Corporate social responsibility is recognized as voluntary and extra legal obligations performed by corporations to work for community welfare and environmental protection. These socially responsible activities of corporations help them in building a good reputation of doing well. This reputation of doing well has a positive impact on all stakeholders including corporation's employees. Employee engagement is very critical to organizational success as suggested by previous studies. It is argued in the literature that engaged employees are more productive and helping organizations in achieving their corporate goals. Based on these arguments a model of corporate social responsibility (CSR) referring to corporate reputation and employee engagement has been currently proposed and tested. Primary data are collected from various banking sector organizations operating in Pakistan. Structural equation modelling (SEM) is employed for data analysis and hypothesis testing. The findings of this research confirm association between CSR and corporate reputation. The study has also found a significant association between CSR and employee engagement. Furthermore, corporate reputation is also found to have a significant effect on employee engagement among Pakistani banking sector employees.

URL: <http://connection.ebscohost.com/c/articles/88008076/how-corporate-social-responsibility-corporate-reputation-influence-employee-engagement>

73. Shahbaz, M., Afza, T., & Shabbir, M. S. (2013). Does defence spending impede economic growth? cointegration and causality analysis for Pakistan. *Defence and Peace Economics*, 24(2), 105-120.

Abstract:

This study revisits the relationship between defence spending and economic growth via a Keynesian model in Pakistan using the autoregressive distributive lag bounds testing approach to cointegration. Empirical evidence suggests a stable cointegration relationship between defence spending and economic growth. An increase in defence spending reduces the pace of economic growth confirming the validity of Keynesian hypothesis in this case. Current economic

growth is positively linked with economic growth of previous periods while a rise in non-military expenditures boosts economic growth. Interest rate is inversely associated with economic growth. Finally, unidirectional causality running from military spending to economic growth is found.

URL: <http://www.tandfonline.com/doi/abs/10.1080/.VA0-5kekqSQ>

DEPARTMENT OF MATHEMATICS

Journal Papers

1. Anwar, I & Khan, S. M. A. (2013). A note on the regularity of a class of stable ideals. *Sci.Int. (Lahore)*, 25(4), 881-882

Abstract:

In this paper, we give an upper bound of the Castelnuovo -Mumford regularity of a class of stable ideals. We discuss those stable ideals, whose associated prime ideals are totally ordered under inclusion and whose irreducible primary decomposition consists the ideals of the type $(x_1^{r_1}, \dots, x_n^{r_n})$ with $r \geq 1$ and $r_1 > r_2 > \dots > r_n = 1$. We name these ideals as r -ideals.

URL: <http://www.sci-int.com/pdf/38219939--881-882--IMRAN%20ANWAR%20--REVISED--25-4-13.pdf>

2. Ahmed, I., Ruas, M. A. S., & Tomazella, J. N. (2013). Invariants of topological relative right equivalences. In *Mathematical Proceedings of the Cambridge Philosophical Society*, 155 (02), 307-315.

Abstract:

Let $(V,0)$ be the germ of an analytic variety in \mathbb{C}^n and f an analytic function germ defined on V . For functions with isolated singularity on V , Bruce and Roberts introduced a generalization of the Milnor number of f , which we call Bruce-Roberts number, $\mu_{BR}(V,f)$. Like the Milnor number of f , this number shows some properties of f and V . In this paper we investigate algebraic and geometric characterizations of the constancy of the Bruce-Roberts number for families of functions with isolated singularities on V . We also discuss the topological invariance of the Bruce-Roberts number for families of quasihomogeneous functions defined on quasihomogeneous varieties. As application of the results, we prove a relative version of the Zariski multiplicity conjecture for quasihomogeneous varieties.

URL: <http://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=8958921&fileId=S0305004113000297>

3. Arshad, S. (2013). On existence and uniqueness of solution of fuzzy fractional differential equations. *Iranian Journal of Fuzzy Systems*, 10(6), 137-151.

Abstract:

The purpose of this paper is to study the fuzzy fractional differential equations. We prove that fuzzy fractional differential equation is equivalent to the fuzzy integral equation and then using this equivalence existence and uniqueness result is established. Fuzzy derivative is considered in the Goetschel- Voxman sense and fractional derivative is considered in the Riemann Liouville sense. At the end, we give the applications of the main result.

URL: http://www.sid.ir/En/VEWSSID/J_pdf/90820130611.pdf

4. Beg, I., & Ashraf, S. (2013). Kleene's fuzzy similarity and measure of similarity. *Annals of Fuzzy Mathematics and Informatics*. 6(2).

Abstract:

The concept of similarity and dissimilarity measures is an important aspect of all sciences. There are several similarity measures that are proposed and used for various purposes in the fields of arts and sciences ranging from anthropology to zoology (see [1], [8], [16], [24] and [26]). Fuzzy similarity measures enjoy a lot of advantages on their crisp counterparts. This is why fuzzy similarity measures are widely studied (see [2], [4], [5], [6], [12], [17], [18], [19], [20] and [22]). Generally, the value of a scalar-valued similarity measure of two fuzzy sets is determined by comparing the corresponding membership values for each element in the universe. The result of this comparison produces a value between 0 and 1; that represents the degree to which the two sets are identical. Dubois and Prade (see [11, chapter 7.3]) use a symmetric difference operation and a scalar evaluator for generation of scalar-valued fuzzy similarity measure, which together satisfy certain axioms. Cross and Sudkamp [9] improved the approach of Dubois and Prade by defining fuzzy-valued assessment of the similarity of fuzzy sets over a universe X . Kehagias and Konstantinidou [17] have extended the range of similarity mapping to a Boolean.

URL: http://www.researchgate.net/publication/235247444_Kleene's_fuzzy_similarity_and_measure_of_similarity/file/3deec51d12164d5761.pdf

5. Raza, M., & Malik, S. M. (2013). Properties of Multivalent Functions Associated with Integral Operator Defined by Hyper Geometric Function. *Properties of Multivalent Functions Associated with Integral Operator Defined by Hyper Geometric Function*. 458

Abstract:

In this paper, we introduce a new class of multivalent functions by using a generalized integral operator defined by the hypergeometric function. Some properties such as inclusion, radius problem and integral preserving are considered.

URL: <http://www.journalofinequalitiesandapplications.com/content/2013/1/458>

6. Raza, M., & Malik, S. N. (2013). Upper bound of the third Hankel determinant for a class of analytic functions related with lemniscate of Bernoulli. *Journal of Inequalities and Applications*, 2013(1), 412.

Abstract:

In this paper, the upper bound of the Hankel determinant $H_3(1)$ for a subclass of analytic functions associated with right half of the lemniscate of Bernoulli $(x^2 + y^2)^2 - 2(x^2 - y^2) = 0$ is investigated.

URL: <http://www.journalofinequalitiesandapplications.com/content/2013/1/412/abstract>

7. Abid, M., Al-Grafi, M. W., & Wajid, H. A. (2013). Effect of Bolt Behaviour on the Performance of a Bolted Joint. *World Applied Sciences Journal*, 26(1), 89-96.

Abstract:

For proper bolted joint's performance, it is known that the higher the pre-load the better the joint will be. In order to achieve proper pre-load and to utilise proper strength of the bolt to increase the joint strength and joint sealing, bolt quality is of prime importance. It is realized that selection of the proper quality bolt is not given enough importance, which results in poor performance of the bolted joints. Due to the improper bolt selection, overloading of the bolts can cause the gasket crushing and flange yielding in a gasketed joint, especially for the large diameter flanges where hammering and flogging applications are adopted. This paper discusses the need of a good quality bolt using detailed experimental study and highlights the effect of surface treatment on bolts; different makes of bolts, use of different number of nuts and washers, use of different nuts, number of tightening on the same bolt, use of lock nuts and use of proper tooling in detail.

URL: [http://idosi.org/wasj/wasj26\(1\)13/15.pdf](http://idosi.org/wasj/wasj26(1)13/15.pdf)

8. Abid, M., Wajid, H. A., Khan, N. D., Akhtar, S., Zahid, M. A., & Usman, M. (2013). Optimization of Ventilation System For Existing Environmentally Controlled Poultry Sheds in Pakistan. *World Applied Sciences Journal*, 24(9), 1221-1233.

Abstract:

Poultry is the ever-growing food industry in Pakistan and to keep up with the demand of meat it is essential to increase its productivity. The most influencing factors in this regard are the design and orientation of sheds as they play a vital role for energy conservation, heating and cooling distribution with controlled temperature and humidity inside the shed. In this paper, we present detailed preliminary computational fluid dynamics (CFD) analysis of optimized

combinations of opening of ventilation systems for different seasons for environmentally controlled poultry shed (ECPS) already in use throughout Pakistan. For both dry and evaporative cooling conditions, all vents closed has been determined the optimized combination as air velocities across chickens are observed within acceptable limits of 0.5 m/s. Moreover, evaporative cooling effective temperature of almost 24°C, with relative humidity of 60-70% is observed which is desired for the comfort of chickens in the shed.

URL: [http://www.idosi.org/wasj/wasj24\(9\)13/15.pdf](http://www.idosi.org/wasj/wasj24(9)13/15.pdf)

9. Anwar, I (2013). On the algebraic study of spanning simplicial complexes of r-cyclic group. *Ars Combinatorica*. (Abstract not Found)

10. Anwar, I. (2013). On the Characterization of f-Ideals. *Communications in Algebra*.

Abstract:

In this paper, we give the complete characterization of f-ideals of degree $d \geq 2$ generalizing the results given in [1].

URL: <http://arxiv.org/pdf/1309.3765v1.pdf>

11. Anwar, I., Ahmad, S., Inam, A., & Haider, A. (2013). Inclusion ideals associated to uniformly increasing hypergraphs. *Studia Scientiarum Mathematicarum Hungarica*, 50(2), 199-206.

Abstract:

In this paper, we introduce inclusion ideals $I(H)$ associated to a special class of non uniform hypergraphs $H(X, E, d)$, namely, the uniformly increasing hypergraphs. We discuss some algebraic properties of the inclusion ideals. In particular, we give an upper bound of the Castelnuovo-Mumford regularity of the special dual ideal $I[_](H)$.

URL: <http://arxiv.org/pdf/1101.1781.pdf>

12. Ali, K., Hussain, M., Ahmad, A., & Miller, M. (2013). Magic Labelings of Type (a, b, c) of Families of Wheels. *Mathematics in Computer Science*, 7(3), 315-319..

Abstract:

In this paper, firstly, we study magic labeling of type (1, 1, 1) for wheels and subdivided wheels. Secondly, we prove that a wheel admits a magic labeling of type (0, 1, 1). We also prove that any odd wheel admits a magic labeling of type (0, 1, 0). At the last, we find the magic labeling of type (1, 1, 0) for subdivided wheels.

URL: <http://link.springer.com/article/10.1007/s11786-013-0162-9>

13. Ali, K., Hussain, M., Shaker, H., & Javaid, M. (2013). Super edge-magic total labeling of subdivided stars. *Ars Combin.*

Abstract:

An edge-magic total labeling of a graph G is a one-to-one map λ from $V(G) \cup E(G)$ onto the integers $\{1, 2, \dots, |V(G)| + |E(G)|\}$ with the property that, there is an integer constant c such that $\lambda(x) + \lambda(y) + \lambda(xy) = c$ for any $(x, y) \in E(G)$. If $\lambda(V(G) \cup E(G)) = \{1, 2, \dots, |V(G)| + |E(G)|\}$ then edge-magic total labeling is called *super edge-magic total labeling*. In this paper, we formulate super edge-magictotal labeling on subdivision of stars $K_{1;p}$; for $p \geq 5$:

URL: <http://www.ciitlahore.edu.pk/Papers/64-8589042556987588308.pdf>

14. Ahmad, S (2013). On f - and h -triangle of the barycentric subdivision of a simplicial complex. *Czechoslovak Mathematical Journal*.

Abstract:

For a simplicial complex Δ we study the behavior of its f - and h -triangle under the action of barycentric subdivision. In particular we describe the f - and h -triangle of its barycentric subdivision $sd(\Delta)$. The same has been done for f - and h -vector of $sd(\Delta)$ by F. Brenti, V. Welker (2008). As a consequence we show that if the entries of the h -triangle of Δ are nonnegative, then the entries of the h -triangle of $sd(\Delta)$ are also nonnegative. We conclude with a few properties of the h -triangle of $sd(\Delta)$.

URL: <http://link.springer.com/article/10.1007%2Fs10587-013-0066-5>

15. Yousaf, M., Ponosov, A., Wyller, J., & Einevoll, G. T. (2013). Neural firing rate model with a steep firing rate function. *Nonlinear Analysis: Real World Applications*, 14(1), 753-767.

Abstract:

In this study we justify rigorously the approximation of the steep firing rate functions with a unit step function in a two-population neural firing rate model with steep firing rate functions. We do this justification by exploiting the theory of switching dynamical systems. It has been demonstrated that switching dynamics offer a possibility of simplifying the dynamical system and getting approximations of the solution of the system for any specific choice of parameters. In this approach the phase space of the system is divided into regular and singular domains, where the limit dynamics can be written down explicitly. The advantages of this method are illustrated by a number of numerical examples for different cases of the singular domains (i.e. for black, white and transparent walls) and for specific choices of the parameters involved.

General conditions have been formulated on these parameters to give black, white and transparent walls. Further, the existence and stability of regular and singular stationary points have been investigated. It has been shown that the regular stationary points (i.e. stationary points inside the regular domains) are always stable and this property is preserved for smooth and sufficiently steep activation functions. In the most technical part of the paper we have provided conditions on the existence and stability of singular stationary points (i.e. those belonging to the singular domains). For the existence results, the implicit function theorem has been used, whereas the stability of singular stationary points is addressed by applying singular perturbation analysis and the Tikhonov theorem.

URL: <http://www.sciencedirect.com/science/article/pii/S1468121812001563>

16. Hanook, S., Shahbaz, M. Q., Mohsin, M., & Golam K, B. M. (2013). A note on beta Inverse-Weibull Distribution. *Communications in Statistics-Theory and Methods*, 42(2), 320-335.

Abstract:

The inverse Weibull distribution is one of the widely applied distribution for problems in reliability theory. In this article, we introduce a generalization—referred to as the Beta Inverse-Weibull distribution—generated from the logit of a beta random variable. We provide a comprehensive treatment of the mathematical properties of the Beta Inverse-Weibull distribution. The shapes of the corresponding probability density function and the hazard rate function have been obtained and graphical illustrations have been given. The distribution is found to be unimodal. Results for the non central moments are obtained. The relationship between the parameters and the mean, variance, skewness, and kurtosis are provided. The method of maximum likelihood is proposed for estimating the model parameters. We hope that this generalization will attract wider applicability to the problems in reliability theory and mechanical engineering.

URL: <http://www.tandfonline.com/doi/abs/10.1080/VA7JK0ekqSQ>

17. Raza, Z & Ahmad, M. (2013). On the unitary units of the group algebra $F_2^m M_{16}$. *Journal Of Algebra And Its Applications*, 12(8), 1350059.

Abstract:

In this note, we have given the center $Z(V^*(\mathbb{F}_2^m M_{16}))$ of unitary units subgroup $V^*(\mathbb{F}_2^m M_{16})$ of group algebra $\mathbb{F}_2^m M_{16}$, where $M_{16} = \langle x, y \mid x^8 = y^2 = 1, xy = yx^5 \rangle$ is the Modular group of order 16 and \mathbb{F}_2^m is any finite field of characteristic 2, with 2^m elements. The structure of the unitary unit subgroup $V^*(\mathbb{F}_2^m M_{16})$ of the group algebra $\mathbb{F}_2^m M_{16}$, is also described, see Theorem 3.1.

URL: <http://www.worldscientific.com/doi/abs/10.1142/S021949881350059X?journalCode=iaa>

18. Agarwal, R. P., Arshad, S., O'Regan, D., & Lupulescu, V. (2013). A Schauder fixed point theorem in semilinear spaces and applications. *Fixed Point Theory and Applications*, 2013(1), 1-13.

Abstract:

In this paper we present existence and uniqueness results for a class of fuzzy fractional integral equations. To prove the existence result, we give a variant of the Schauder fixed point theorem in semilinear Banach spaces.

URL: <http://link.springer.com/article/10.1186/1687-1812-2013-306>

19. Yousaf, M., Kriener, B., Wyller, J., & Einevoll, G. T. (2013). Generation and annihilation of localized persistent-activity states in a two-population neural-field model. *Neural Networks*, 46, 75-90.

Abstract:

We investigate the generation and annihilation of persistent localized activity states, so-called bumps, in response to transient spatiotemporal external input in a two-population neural-field model of the Wilson–Cowan type. Such persistent cortical states have been implicated as a biological substrate for short-term working memory, that is, the ability to store stimulus-related information for a few seconds and discard it once it is no longer relevant. In previous studies of the same model it has been established that the stability of bump states hinges on the relative inhibitory constant τ , i.e., the ratio of the time constants governing the dynamics of the inhibitory and excitatory populations: persistent bump states are typically only stable for values of τ smaller than a critical value τ_{cr} . We find here that τ is also a key parameter determining whether a transient input can generate a persistent bump state (in the regime where $\tau < \tau_{cr}$) or not. For small values of τ generation of the persistent states is found to depend only on the overall strength of the transient input, i.e., as long as the magnitude and duration of the excitatory transient input are larger and/or long enough, the persistent state will be activated. For higher values of τ we find that only specific combinations of amplitude and duration leads to persistent activation. For the corresponding annihilation process, no such delicate selectivity on the transient input is observed.

URL: <http://www.sciencedirect.com/science/article/pii/S0893608013001287>

20. Hanook, S., Shahbaz, M. Q., Mohsin, M., & Golam, B. M. (2013). Letter to Editor. *Communications In Statistics-Theory And Methods*, 42(18), 2671-2672. (Abstract not Found)

21. Ahmed, I., Ruas, M. A. S., & Tomazella, J. N. (2013). Invariants of topological relative right equivalences. In *Mathematical Proceedings of the Cambridge Philosophical Society*, 155(02), 307-315

Abstract:

Let $(V,0)$ be the germ of an analytic variety in \mathbb{C}^n and f an analytic function germ defined on V . For functions with isolated singularity on V , Bruce and Roberts introduced a generalization of the Milnor number of f , which we call Bruce–Roberts number, $\mu_{BR}(V,f)$. Like the Milnor number of f , this number shows some properties of f and V . In this paper we investigate algebraic and geometric characterizations of the constancy of the Bruce–Roberts number for families of functions with isolated singularities on V . We also discuss the topological invariance of the Bruce–Roberts number for families of quasihomogeneous functions defined on quasihomogeneous varieties. As application of the results, we prove a relative version of the Zariski multiplicity conjecture for quasihomogeneous varieties.

URL: <http://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=8958921&fileId=S0305004113000297>

22. Javaid, M., Bhatti, A. A., Hussain, M., & Ali, K. (2013). Super edge-magic total labeling on forest of extended w -trees. *Utilitas Math*, 91, 155-162.

Abstract:

An *edge-magic total labeling* of a graph G is a one-to-one map μ from $V(G) \cup E(G)$ onto the integers $\{1, 2, \dots, |V(G)| + |E(G)|\}$ with the property that, there is an integer constant c such that $\mu(x) + \mu(y) + \mu(xy) = c$ for any $(x, y) \in E(G)$. If $\mu(V(G) \cup E(G)) = \{1, 2, \dots, |V(G)| + |E(G)|\}$ then labeling μ is called *super edge-magic total labeling*. In this paper we formulate super edge-magic total labeling on extended w -trees

URL: <http://www.ciitlahore.edu.pk/Papers/64-8589042555897744558.pdf>

23. Ali, K., Hussain, M & Razzaq, A. (2013). Super edge-magic total labeling of a tree. *Utilitas Math*, 91, 355-364.

Abstract:

An *edge-magic total labeling* of a graph G is a one-to-one map λ , from $V(G) \cup E(G)$ onto the integers $\{1, 2, \dots, |V(G)| + |E(G)|\}$ with the property that, there is an integer constant c such that $\lambda(x) + \lambda(xy) + \lambda(y) = c$ for any $xy \in E(G)$. If $\lambda(V(G) \cup E(G)) = \{1, 2, \dots, |V(G)| + |E(G)|\}$ then edge-magic total labeling is called *super edge-magic total labeling*. In this paper we investigate super edge-magic total labeling on w -trees.

URL: https://www.google.com.pk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CBsQFjAA&url=http%3A%2F%2Fwww.researchgate.net%2Fpublication%2F257147920_Super_edge-magic_total_labeling_of_a_tree%2Ffile%2F0b49524bb05e11375.pdf&ei=xM4OVPWzB8fVasnxgeAM&usq=AFQjCNG7QaHUnRkk84Zcwyn4LibG2mGPJA&bvm=bv.74649129,d.bGQ

24. Faisal, M., Futschik, A., & Hussain, I. (2013). A new approach to choose acceptance cutoff for approximate Bayesian computation. *Journal of Applied Statistics*, 40(4), 862-869.

Abstract:

The approximate Bayesian computation (ABC) algorithm is used to estimate parameters from complicated phenomena, where likelihood is intractable. Here, we report the development of an algorithm to choose the tolerance level for ABC. We have illustrated the performance of our proposed method by simulating the estimation of scaled mutation and recombination rates. The result shows that the proposed algorithm performs well.

URL: <http://www.tandfonline.com/doi/abs/10.1080/.VA7QIEekqSQ>

25. Khan, N. A., Mahmood, A., & Ara, A. (2013). Approximate solution of couple stress fluid with expanding or contracting porous channel. *Engineering Computations*, 30(3), 399-408.

Abstract:

Purpose The purpose of this paper is to investigate the approximate solution of the couple stress fluid equations in a semi-infinite rectangular channel with porous and uniformly expanding or contracting walls.

Design/methodology/approach Perturbation method is a traditional method depending on a small parameter which is difficult to be found for real-life nonlinear problems. The governing partial differential equations are transformed using a transformation into an ordinary differential equation that is solved by homotopy analysis method (HAM) and shooting technique.

Findings To assess the accuracy of the solutions, the comparison of the obtained results reveals that both methods are tremendously effective. Analytical and numerical solutions comparison

indicates an excellent agreement and this comparison is also presented. Graphs are portrayed for the effects of some values of parameters.

Practical implications Expansion or contraction problems occur naturally in the transport of biological fluids, the air circulation in the respiratory system, expanding or contracting jets and the synchronous pulsating of porous diaphragms. This work provides a very useful source of information for researchers on this subject

Originality/value In the present study, the flow of couple stress fluids in expanding and contracting scenarios is investigated.

URL: <http://www.emeraldinsight.com/doi/abs/10.1108/02644401311314358>

DEPARTMENT OF PHYSICS

Journal Papers

1. Farooq, R., Durrani, M & Shaukat, S F (2013). Treatment of tanneries waste water by ultrasound assisted electrolysis process. *Journal of Chemical Society of Pakistan*. 35(3), 599-603

Abstract:

The leather industry is a major producer of wastewater and solid waste containing potential water and soil contaminants. Considering the large amount and variety of chemical agents used in skin processing, the wastewaters generated by tanneries are very complex. Therefore, the development of treatment methods for these effluents is extremely necessary. In this work the electrochemical treatment of a tannery wastewater by ultrasound assisted electrochemical process, using stainless steel and lead cathode and titanium anodes was studied. Effect of ultrasound irradiation at various ultrasonic intensities 0, 40, 60 and 80% on electrochemical removal of chromium was investigated. Experiments were conducted at two pH conditions of pH 3 and 9. Significant removal of chromium was found at pH 3 and it was also noticed that by increasing ultrasonic intensities, percentage removal of chromium and sulfate also increases. The optimum removal of chromium and sulfate ions was observed at 80% ultrasonic intensity. The technique of electrolysis assisted with ultrasonic waves can be further improved and can be the future waste water treatment process for industries.

URL: <http://jcsp.org.pk/PublishedVersion/523b2c17-80ca-4b90-82ccdb4d0f02def2Manuscript%20no%207%20Final%20Gally%20proof%20of%209454%20ROBINA%20FAROOQ.doc%20CHECKED.pdf>

2. Liao, Q., Liu, X & Ashfaq, A M (2013). Entanglement between charge and flux qubits. *Modern Physics Letters B*. 31(27), 599-603

Abstract:

Following the scheme proposed by X. L. He et al. [Phys. Rev. B76 (2007) 024517], we investigate the generation of a maximally entangled state between the charge and flux qubits. It is shown that macroscopic Einstein-Podolsky-Rosen (EPR) pairs can be created and the entanglement can be long-lived. Since the large Josephson junction is only virtually excited, no quantum information will be transferred from the charge and flux qubits to the large Josephson junction. Based on the strong inductive coupling, a fast entanglement operation can be achieved.

URL: <http://www.worldscientific.com/doi/abs/10.1142/S0217984913502308>

3. Asif, M (2013). Approximate Methods for the Calculation of Plasma Internal Inductance for Circular Cross Section Tokamak. *Journal of Modern Physics*. 4(5), 597-581

Abstract:

Calculation of Plasma internal inductance (l_i) is essential in Tokamak plasma research. Much more plasma parameters such as the plasma current density profile, magnetohydrodynamics instability, and plasma energy confinement time can be determined by using this parameter. Discrete poloidal magnetic probes along with the diamagnetic loop can be utilized in measurement of the Plasma internal inductance (l_i). In this paper Plasma internal inductance (l_i) is studied by theoretical and experimental approach for HT-7 Tokamak plasmas. The results of two methods are in good agreement with each other.

URL: <http://www.scirp.org/journal/PaperInformation.aspx?PaperID=31415#.VAgKQ0ekqSQ>

4. Asif, M (2013). Study of Effective Edge Safety Factor Using Analytical Solution of Grad-Shafranov Equation for Circular Cross Section Tokamak . *Journal of Modern Physics*. 4(6), 754-576

Abstract:

In this work, we present effective edge safety factor using analytical solution of the Grad-Shafranov equation based on expansion of free functions of first order and magnetic probes for circular cross section HT-7 tokamak.

URL: <http://www.scirp.org/journal/PaperInformation.aspx?PaperID=32956#.VAgLlqMqL1U>

5. Akthar, M N., Yahya, N & Nasir, N (2013). New EM Transmitter with Y₃Fe₅O₁₂ based Magnetic Feeders Potentially Used for Seabed Logging Application. *Advanced Materials Research*. 677, 10-23

Abstract:

Sea bed logging (SBL) is a new technique for detection of deep target hydrocarbon reservoir. Powerful electromagnetic (EM) transmitter is required for the transmission of EM signal underneath the seabed. New aluminum transmitter with yttrium iron garnet (Y₃Fe₅O₁₂) based magnetic feeders was used in a scale tank to increase the magnitude of the magnetic field. Yttrium iron garnet samples were prepared using self combustion technique at different sintering temperatures of 750°C, 950°C and 1150°C. Characterizations of Y₃Fe₅O₁₂ samples were done by using XRD, RAMAN, FESEM and Impedence network analyser. X-ray diffraction results revealed that yttrium iron garnet phase with good crystallinity appeared at sintering temperature of 1150°C. Nanoparticles size ranging from 60 to 110 nm was investigated. Raman

results also confirmed garnet structure of yttrium iron garnet at sintering temperature of 1150°C. Field emission scanning electron microscopy (FESEM) was used to image the morphology of the $Y_3Fe_5O_{12}$ nanoparticles. Magnetic properties of $Y_3Fe_5O_{12}$ magnetic feeders illustrates that $Y_3Fe_5O_{12}$ has high Initial permeability (58.054), high Q-factor (59.842) and low loss factor (0.0003) at sintering temperature of 1150°C. $Y_3Fe_5O_{12}$ magnetic feeders with high Q factor were chosen for new aluminum EM transmitter. Experiments with a scale factor of 2000 were carried out in scaled tank. It was found that Al transmitter with $Y_3Fe_5O_{12}$ magnetic feeders increased magnitude of magnetic field strength up to 180%.

URL: <http://www.scientific.net/AMR.667.10>

6. Aaij, R., Beteta, C A & Nasir, S. (2013). Search for $\eta_c(2S)hc \rightarrow pp^-$ decays and measurements of the $\chi_{cJ} \rightarrow pp^-$ branching fractions. *Phys. Rev. D.* 88.

Abstract:

Using a sample of $1.06 \times 10^8 \psi(3686)$ events collected with the BESIII detector at BEPCII, the decays $\eta_c(2S) \rightarrow pp^-$ and $hc \rightarrow pp^-$ are searched for, where $\eta_c(2S)$ and hc are reconstructed in the decay chains $\psi(3686) \rightarrow \gamma \eta_c(2S)$, $\eta_c(2S) \rightarrow pp^-$ and $\psi(3686) \rightarrow \pi^0 hc$, $hc \rightarrow pp^-$, respectively. No significant signals are observed. The upper limits of the product branching fractions are determined to be $B(\psi(3686) \rightarrow \gamma \eta_c(2S)) \times B(\eta_c(2S) \rightarrow pp^-) < 1.4 \times 10^{-6}$ and $B(\psi(3686) \rightarrow \pi^0 hc) \times B(hc \rightarrow pp^-) < 1.3 \times 10^{-7}$ at the 90% C.L.. The branching fractions for $\chi_{cJ} \rightarrow pp^-$ ($J=0, 1, 2$) are also measured to be $(24.5 \pm 0.8 \pm 1.3, 8.6 \pm 0.5 \pm 0.5, 8.4 \pm 0.5 \pm 0.5) \times 10^{-5}$, which are the world's most precise measurements.

URL: <http://inspirehep.net/record/1261880>

7. Aaij, R., Beteta, C A & Nasir, S (2013). Observation of the decay $\psi(3686) \rightarrow \Lambda \Sigma^\pm \pi^\mp + c.c.$ *Phys. Rev. D.* 88.

Abstract:

Using a sample of $1.06 \times 10^8 \psi(3686)$ events collected with the BESIII detector, we present the first observation of the decays of $\psi(3686) \rightarrow \Lambda \Sigma^\pm \pi^\mp + c.c.$ and $\psi(3686) \rightarrow \Lambda \Sigma^\mp \pi^\mp + c.c.$. The branching fractions are measured to be $B(\psi(3686) \rightarrow \Lambda \Sigma^\pm \pi^\mp + c.c.) = (1.40 \pm 0.03 \pm 0.13) \times 10^{-4}$ and $B(\psi(3686) \rightarrow \Lambda \Sigma^\mp \pi^\mp + c.c.) = (1.54 \pm 0.04 \pm 0.13) \times 10^{-4}$, where the first errors are statistical and the second ones systematic.

URL: <http://inspirehep.net/record/1261765>

8. Bukhari, M., Iqbal, S J., Rafique, M S & Iqbal, M (2013). Production of hard x-ray by laser produced plasma. *Science International.* (Lahore). 25(4), 687-691

Abstract:

We study the X-ray emission from laser produced plasma of different materials. Nd:YAG (1.06 μ m) laser, of energy 10 mJ, and FWHM 12 ns is focused on the targets to produce plasmas from different target materials. X-rays are generated due to laser matter interaction. The experiments are performed under vacuum $\sim 10^{-3}$ torr in the eight port stainless chamber. Tungsten, Silver, Aluminum, and Copper are used as target material. The hard X-rays are detected by PMT. The X-rays signals are analysed by 200 MHz digital storage oscilloscope. Tungsten having higher atomic number is found to be a good source of hard X-rays.

URL: <http://www.sci-int.com/pdf/2166022011-%20687-691-%20Mahrukh-Physics-25%20Feb.pdf>

9. Aaij, R., Beteta, C. A., Adametz, A., Adeva, B., Adinolfi, M., Adrover, C., & Berner, R. (2013). First Evidence for the Decay $B_s^0 \rightarrow \mu^+ \mu^-$. *Physical review letters*, 110(2), 021801.

Abstract:

A search for the rare decays $B_0 \rightarrow \mu^+ \mu^-$ and $B_0 \rightarrow \mu^+ \mu^-$ is performed with data collected in 2011 and 2012 with the LHCb experiment at the Large Hadron Collider. The data samples comprise 1.1 fb $^{-1}$ of proton-proton collisions at $\sqrt{s}=8$ TeV and 1.0 fb $^{-1}$ at $\sqrt{s}=7$ TeV. We observe an excess of $B_0 \rightarrow \mu^+ \mu^-$ candidates with respect to the background expectation. The probability that the background could produce such an excess or larger is 5.3×10^{-4} corresponding to a signal significance of 3.5 standard deviations. A maximum-likelihood fit gives a branching fraction of $B(B_0 \rightarrow \mu^+ \mu^-) = (3.2^{+1.5}_{-1.2}) \times 10^{-9}$, where the statistical uncertainty is 95% of the total uncertainty. This result is in agreement with the standard model expectation. The observed number of $B_0 \rightarrow \mu^+ \mu^-$ candidates is consistent with the background expectation, giving an upper limit of $B(B_0 \rightarrow \mu^+ \mu^-) < 9.4 \times 10^{-10}$ at 95% confidence level.

URL: <http://journals.aps.org/prl/abstract/10.1103/PhysRevLett.110.021801>

10. Aaij, R., Beteta, C. A., Adametz, A., Nisar, S.; et al (2013). Amplitude analysis and branching fraction measurement of $\overline{B}(s)(0) \rightarrow J/\psi K^+ K^-$. *Physical review letters*, 87(7), 72004. (Abstract is not Found)

11. Aaij, R., Beteta, C. A., Adametz, A., Nisar, S.; et al (2013). Observation of $D^0 - \overline{D}^0$ Oscillations. *Physical review letters*, 110(10), 101802. (Abstract is not Found)

12. Aaij, R., Beteta, C. A., Adametz, A., Adeva, B., Adinolfi, M., Adrover, C., ... & Berezhnoy, A. (2013). Measurement of the fragmentation fraction ratio f_s/f_d and its dependence on B meson kinematics. *Journal of High Energy Physics*, 2013(4), 1-17.

Abstract:

The relative production rate of B^0 and B^{\pm} mesons is determined with the hadronic decays $B^0 \rightarrow D^- \pi^+$ and $B^{\pm} \rightarrow D^{\mp} K^{\pm}$. The measurement uses data corresponding to 1.0 fb^{-1} of pp collisions at a centre-of-mass energy of $\sqrt{s}=7 \text{ TeV}$ recorded in the forward region with the LHCb experiment. The ratio of production rates, f_s/f_d , is measured to be $0.238 \pm 0.004 \pm 0.015 \pm 0.021$, where the first uncertainty is statistical, the second systematic, and the third theoretical. This is combined with a previous LHCb measurement to obtain $f_s/f_d = 0.256 \pm 0.020$. The dependence of f_s/f_d on the transverse momentum and pseudorapidity of the B meson is determined using the decays $B^0 \rightarrow D^- \pi^+$ and $B^{\pm} \rightarrow D^{\mp} K^{\pm}$. There is evidence for a decrease with increasing transverse momentum, whereas the ratio remains constant as a function of pseudorapidity. In addition, the ratio of branching fractions of the decays $B^0 \rightarrow D^- K^+$ and $B^0 \rightarrow D^- \pi^+$ is measured to be $0.0822 \pm 0.0011 \text{ (stat)} \pm 0.0025 \text{ (syst)}$.

URL: [http://link.springer.com/article/10.1007/JHEP04\(2013\)001](http://link.springer.com/article/10.1007/JHEP04(2013)001)

13. Aaij, R., Beteta, C. A., Adametz, A., Nisar, S.; et al (2013). Exclusive J/ψ and $\psi(2S)$ production in pp collisions at $\sqrt{s}=7 \text{ TeV}$. *Journal Of Physics G-Nuclear And Particle Physics*, 40 (4), 45001. (Abstract is not Found)

14. Aaij, R., Beteta, C. A., Adametz, A., Nisar, S.; et al (2013). Measurement of J/ψ production in pp collisions at $\sqrt{s}=2.76 \text{ TeV}$. *Journal Of High Energy Physics*, 2, 41.

Abstract:

The production of J/ψ mesons is studied with the LHCb detector using data from pp collisions at $\sqrt{s} = 2.76 \text{ TeV}$ corresponding to an integrated luminosity of 71 nb^{-1} . The differential cross-section for inclusive J/ψ production is measured as a function of its transverse momentum $p(T)$. The cross-section in the fiducial region $0 < p(T) < 12 \text{ GeV}/c$ and rapidity $2.0 < y < 4.5$ is measured to be $5.6 \pm 0.1 \text{ (stat)} \pm 0.4 \text{ (syst)} \mu\text{b}$, with the assumption of unpolarised J/ψ production. The fraction of J/ψ production from b -hadron decays is measured to be $(7.1 \pm 0.6 \text{ (stat)} \pm 0.7 \text{ (syst)})\%$.

URL: <http://infoscience.epfl.ch/record/186549>

15. Aaij, R., Beteta, C. A., Adametz, A., Nisar, S.; et al (2013). Study of $B^0 \rightarrow D^{*+} \pi^+ \pi^-$ and $B^0 \rightarrow D^{*0} \pi^+ \pi^-$ decays. *Physical Review D*, 87(9), 92001.

Abstract:

Using proton-proton collision data collected by the LHCb experiment at $\sqrt{s} = 7 \text{ TeV}$, corresponding to an integrated luminosity of 1.0 fb^{-1} , the ratio of branching fractions of the

$B_0 \rightarrow D^{*-} \pi^+ \pi^- \pi^+$ decay relative to the $B_0 \rightarrow D^{*-} \pi^+$ decay is measured to be $B(B_0 \rightarrow D^{*-} \pi^+ \pi^- \pi^+) / B(B_0 \rightarrow D^{*-} \pi^+) = 2.64 \pm 0.04 \text{ (stat.)} \pm 0.13 \text{ (syst.)}$. The Cabibbo-suppressed decay $B_0 \rightarrow D^{*-} K^+ \pi^- \pi^+$ is observed for the first time and the measured ratio of branching fractions is $B(B_0 \rightarrow D^{*-} K^+ \pi^- \pi^+) / B(B_0 \rightarrow D^{*-} \pi^+ \pi^- \pi^+) = (6.47 \pm 0.37 \text{ (stat.)} \pm 0.35 \text{ (syst.)}) \times 10^{-2}$. A search for orbital excitations of charm mesons contributing to the $B_0 \rightarrow D^{*-} \pi^+ \pi^- \pi^+$ final state is also performed, and the first observation of the $B_0 \rightarrow \bar{D}_{1(2420)}^0 \pi^+ \pi^-$ decay is reported with the ratio of branching fractions $B(B_0 \rightarrow \bar{D}_{1(2420)}^0 \pi^+ \pi^-) / B(B_0 \rightarrow D^{*-} \pi^+ \pi^- \pi^+) = (2.04 \pm 0.42 \text{ (stat.)} \pm 0.22 \text{ (syst.)}) \times 10^{-2}$, where the numerator represents a product of the branching fractions $B(B_0 \rightarrow \bar{D}_{1(2420)}^0 \pi^- \pi^+)$ and $B(\bar{D}_{1(2420)}^0 \rightarrow D^{*-} \pi^+)$.

URL: <http://arxiv.org/abs/1303.6861>

16. Idrees, M., Nadeem, M., & Siddique, M. (2013). Role of holes states on metal to insulator transition and collapse of magnetic ordering in $\text{LaFe}_{1-x}\text{Ni}_x\text{O}_3$ ($x=0.0-0.5$). *Current Applied Physics*, 13(3), 448-452.

Abstract:

Polycrystalline $\text{LaFe}_{1-x}\text{Ni}_x\text{O}_3$ ($x = 0.0, 0.1, 0.3$ and 0.5) have been prepared by the standard solid state reactions method. The phase formation has been confirmed by the powerful synchrotron X-ray diffraction experiment. In order to investigate the effects of Ni doping on the oxidation state, spin state and the magnetic ordering of the iron cations, ^{57}Fe Mössbauer Spectroscopy has been carried out at room temperature. Iron is present as Fe^{3+} in high spin state in LaFeO_3 . Ni doping has no effect on the spin state of the Fe^{3+} cations. However, a progressive increase in the concentration of Fe^{4+} cations has been inferred. Relatively stronger covalent character of the $\text{Fe}^{4+}-\text{O}^{2-}$ bond causes a progressive collapse in the magnetic ordering and delocalization of the hole states.

URL: <http://www.sciencedirect.com/science/article/pii/S1567173912003847>

17. Liao, Q. H., Nie, W. J., Zhou, N. R., Liu, Y., & Ahmad, M. A. (2013). The Entanglement Dynamics of Two Atoms in a Double Two-Photon Jaynes-Cummings Model. *Chinese Journal of Physics*, 51(2), 404-411.

Abstract:

By employing the concurrence, we investigate the dynamics of entanglement between two atoms in a double two-photon Jaynes-Cummings model when the cavity field is previously in a maximally entangled state. The influence of the atomic coherence on the time evolution of the atom-atom entanglement is examined. It is shown that the phenomenon of the sudden birth of

entanglement occurs, and the atomic coherence decreases the degree of the atom-atom entanglement. Moreover, it is found that a maximally entangled two-atom state can be generated.

URL: <http://www.airitilibrary.com/Publication/alDetailedMesh?docid=05779073-201304-201305230016-201305230016-404-411>

18. Aaij, R., Beteta, C. A., Adametz, A., Nisar, S., et, al.; (2013). Measurements of the branching fractions of $B^+ \rightarrow p(\bar{K}^+)$ decays. *European Physical Journal C*, 73(6), 2462.

Abstract:

The branching fractions of the decay $B^+ \rightarrow p(\bar{K}^+)$ for different intermediate states are measured using data, corresponding to an integrated luminosity of 1.0 fb^{-1} , collected by the LHCb experiment. The total branching fraction, its charmless component ($M \rightarrow p(\bar{K}^+)$ with $M < 2.85 \text{ GeV}/c^2$) and the branching fractions via the resonant $c\bar{c}$ states $\eta_c(1S)$ and $\psi(2S)$ relative to the decay via a J/ψ intermediate state are $B(B^+ \rightarrow p(\bar{K}^+))_{\text{total}}/B(B^+ \rightarrow J/\psi K^+ \rightarrow p(\bar{K}^+)) = 4.91 \pm 0.19 \text{ (stat)} \pm 0.14 \text{ (syst)}$, $B(B^+ \rightarrow p(\bar{K}^+))_{M < 2.85 \text{ GeV}/c^2}/B(B^+ \rightarrow J/\psi K^+ \rightarrow p(\bar{K}^+)) = 2.02 \pm 0.10 \text{ (stat)} \pm 0.08 \text{ (syst)}$, $B(B^+ \rightarrow \eta_c(1S)K^+ \rightarrow p(\bar{K}^+))/B(B^+ \rightarrow J/\psi K^+ \rightarrow p(\bar{K}^+)) = 0.578 \pm 0.035 \text{ (stat)} \pm 0.027 \text{ (syst)}$, $B(B^+ \rightarrow \psi(2S)K^+ \rightarrow p(\bar{K}^+))/B(B^+ \rightarrow J/\psi K^+ \rightarrow p(\bar{K}^+)) = 0.080 \pm 0.012 \text{ (stat)} \pm 0.009 \text{ (syst)}$. Upper limits on the B^+ branching fractions into the $\eta_c(2S)$ meson and into the charmonium-like states $X(3872)$ and $X(3915)$ are also obtained.

URL: <http://infoscience.epfl.ch/record/188984>

19. Lima, R. B., Raza, R., Qin, H., Li, J., Lindström, M. E., & Zhu, B. (2013). Direct lignin fuel cell for power generation. *RSC Advances*, 3(15), 5083-5089.

Abstract:

Lignin, the second most abundant component after cellulose in biomass, has been examined in this study as a fuel for direct conversion into electricity using direct carbon fuel cells (DCFC). Two different types of industrial lignins were investigated: Lignosulfonate (LS) and Kraft lignin(KL), in their commercial forms, after their blending with commercial active carbon (AC) or after alteration of their structures by a pH adjustment to pH 10. It was found that the open circuit voltage (OCV) of the DCFC could reach around 0.7 V in most of the trials. Addition of active carbon increased the maximum current density from 43–57 to 83–101 mA cm^{-2} . The pH adjustment not only increased the maximum current density but also reduced the differences between the two types of lignins, resulting in an OCV of 0.68–0.69 V and a

maximum current density of 74–79 mA cm⁻² from both lignins. Typical power density was 12 (for KL + AC) and 24 mW cm⁻² (for LS + AC). It is concluded that a direct lignin fuel cell is feasible and the ligninhydrophilicity is critical for the cell performance.

URL: <http://pubs.rsc.org/en/content/articlelanding/2013/ra/c3ra23418e/unauth#!divAbstract>

20. Hussain, T., Siddiqi, S. A., Atiq, Shahid, A & Awan, M. S (2013). Induced modifications in the properties of Sr doped BiFeO₃ multiferroics. *Progress in Natural Science-Materials International*, 23(5), 487-492

Abstract:

Multiferroics exhibit unique combination of ferroic properties, simultaneously. For instance, in BiFeO₃, magnetic and electric properties co-exist. In this work, BiFeO₃ and Sr-doped BiFeO₃ samples with general formula, Bi_{1-x}Sr_xFeO₃ (x=0.00, 0.05, 0.10, 0.20, and 0.30) were synthesized by sol-gel auto-combustion technique, in order to investigate these ferroic properties. The samples were confirmed to have perovskite type rhombohedral structure, characteristic of BiFeO₃. A dilute phase of Bi₂Fe₄O₉ was also found in all the Sr-doped samples. The micrographs of the palletized samples revealed that minutely doped Sr might not have any effect on the morphology of the samples. Frequency dependent dielectric measurements were carried out at room temperature for all the samples from 100 Hz to 1 MHz. The dielectric constant of un-doped sample at low frequency was 52 which decreased with increasing Sr doping. An enhancement of magnetic properties was observed with increasing the Sr contents. Pure BiFeO₃ material was observed to have the least value of remanent magnetization. As the Sr²⁺ ions were doped in BiFeO₃, its magnetization and remanence were increased to 0.867 emu/g and 0.175 emu/g, respectively, at x=0.30.

URL: <http://www.sciencedirect.com/science/article/pii/S1002007113001378>

21. Liao, Q., & Ahmad, M. A. (2013). Entropy squeezing of atom and the generation of Schrödinger-cat states in the three-photon Jaynes–Cummings model. *Optik-International Journal for Light and Electron Optics*, 124(12), 1083-1088.

Abstract:

In this work, we investigate the effect of the initial phase of the field and the atomic coherence on the time evolution of entropy squeezing of the atom and the atomic inversion in the three-photon Jaynes–Cummings model. Moreover, the evolution of the von Neumann entropy of the atom, Q function and the generation of the Schrödinger-cat states are examined. The results show that the entropy squeezing of the atom and the atomic inversion are sensitive to the initial phase of the field and the initial atomic state. It is also found that the Schrödinger-cat

states of the cavity field can be obtained at one half of the revival time in the large photon number approximation.

URL: <http://www.sciencedirect.com/science/article/pii/S0030402612001787>

22. Aaij, R., Romero, D. A., Robbe, P., Nisar, S, et al (2013). Analysis of the resonant components in $(B)_{\text{over-bar}}(0) \rightarrow J/\psi \pi^+\pi^-$. *Physical Review D*, 87(5). (Abstract is not Found)

23. Farooq, M., Alam, S., Naseem, S., Shaukat, S. F., & Farooq, R. (2013). Stabilize Consequences of Y2O3 in Zirconia Thermal Barrier Coatings (TBC). *J. Chem. Soc. Pak*, 35(1), 37.

Abstract:

The accumulation of cubic stabilizing oxides is a pre-requisite for the use of Zirconia as a main voter in thermal barrier coating. These can be added in ample amounts to form a partially stabilized Zirconia or to form a fully stabilized Zirconia. Zirconia yttria (ZrO₂.Y₂O₃) coating deposited by plasma spray method is widely used in industry as a thermal barrier coating (TBC). Development of narrative and innovative ceramic materials, which have brought about significant hi-tech change, predominately by Y₂O₃ for the accumulation of varying amounts of cubic stabilizing oxide. This paper is a study on the effect of stabilizer on performance of ZrO₂ thermal barrier coatings. For experimentation, Y₂O₃ complete characterization was done with ZrO₂.Y₂O₃ coated samples to optimize the micro structural, mechanical properties and characterization, using the latest techniques. It was observed that porosity content in all the coated samples was not very high. However the porosity content was uniformly distributed and pore size was small. It has been revealed that, in case of small porosity content, hardness values of thermal barrier coating with stabilizing effect of yttria were not very high.

URL: <http://jcsp.org.pk/PublishedVersion/3239cedd-0097-456c-a981-165f5936f8b1Manuscript%20no%208,%201st%20Gally%20proof%20of%209228%20Saleem%20Farooq%20Shaukat .pdf>

24. Khan, A. A., Jamil, M., Rasheed, A., & Murtaza, G. (2013). Shukla-Nambu-Salimullah potential with multi electron species in magnetoplasmas. *Physics of Plasmas (1994-present)*, 20(2), 022107.

Abstract:

The phenomenon of shielding of test charge in the presence of an external magnetic field(Shukla-Nambu-Salimullah potential) is investigated in electron ion plasmas using the approach of two temperature electrons. The modified dispersion relations of ion acoustic waves under different conditions are derived. We get different profiles of potential for different

parameters and observe that the potentials fall very slowly than the standard Shukla-Nambu-Salimullah potential given in the reference.

URL: <http://scitation.aip.org/content/aip/journal/pop/20/2/10.1063/1.4792162>

25. Khan, A. A., Jamil, M., Rasheed, A., & Murtaza, G. (2013). Shukla-Nambu-Salimullah potential with multi electron species in magnetoplasmas. *Physics of Plasmas (1994-present)*, 20(2), 022107.

Abstract:

The phenomenon of shielding of test charge in the presence of an external magnetic field (Shukla-Nambu-Salimullah potential) is investigated in electron ion plasmas using the approach of two temperature electrons. The modified dispersion relations of ion acoustic waves under different conditions are derived. We get different profiles of potential for different parameters and observe that the potentials fall very slowly than the standard Shukla-Nambu-Salimullah potential given in the reference.

URL: <http://scitation.aip.org/content/aip/journal/pop/20/2/10.1063/1.4792162>

26. Zhu, B., Lund, P., Raza, R., Patakangas, J., Huang, Q. A., Fan, L., & Singh, M. (2013). A new energy conversion technology based on nano-redox and nano-device processes. *Nano Energy*, 2(6), 1179-1185.

Abstract:

Electrolyte-separator-free fuel cell (EFFC) is a new emerging energy conversion technology. The EFFC consists of a single-component of nanocomposite material which works as a one-layer fuel cell device contrary to the traditional three-layer anode–electrolyte–cathode structure, in which an electrolyte layer plays a critical role. The nanocomposite of a single homogenous layer consists of a mixture of semiconducting and ionic materials that provides the necessary electrochemical reaction sites and charge transport paths for a fuel cell. These can be accomplished through tailoring ionic and electronic (n, p) conductivities and catalyst activities, which enable redox reactions to occur on nano-particles and finally accomplish a fuel cell function.

URL: <http://www.sciencedirect.com/science/article/pii/S2211285513000827>

27. Asif, M. (2013). Study of plasma displacement and $\beta(p) + I(i)/2$ by the simplest Grad-Shafranov equation solution for circular cross section tokamak. *Revista Mexicana De Fisica*, 59(6), 517-520.

Abstract:

Electrolyte-separator-free fuel cell (EFFC) is a new emerging energy conversion technology. The EFFC consists of a single-component of nanocomposite material which works as a one-layer fuel cell device contrary to the traditional three-layer anode–electrolyte–cathode structure, in which an electrolyte layer plays a critical role. The nanocomposite of a single homogenous layer consists of a mixture of semiconducting and ionic materials that provides the necessary electrochemical reaction sites and charge transport paths for a fuel cell. These can be accomplished through tailoring ionic and electronic (n, p) conductivities and catalyst activities, which enable redox reactions to occur on nano-particles and finally accomplish a fuel cell function.

URL: <http://www.scielo.org.mx/pdf/rmf/v59n6/v59n6a3.pdf>

DEPARTMENT OF STATISTICS

Journal Papers

1. Iman, A & Shah, F T (2013). Impact of gender bias on organizational commitment: an empirical study of glass ceiling practices in corporate sector of Pakistan. *Elixir International Journal*. 57, 14111-14115

Abstract:

The Glass ceiling practices in the corporate sector have been a subject of concern in the industry and in the policy-making quarters of the government. Present government legal framework does not have enough hold to curb on local glass ceiling practices effectively. There is a need to eliminate glass-ceiling practices in the corporate sector in order to keep female employees motivated. It will create congenial working environment and will lead to improvement in female employee's attitude, commitment and ownership towards their work engagements in the organization. Women employees need to be recognized and given equal participation in each and every level of the organization. The objective of the study is to map environment of glass ceiling practices and to highlight female employees' harassment, discrimination and carrier deterrence practices. The research work is done through survey using a questionnaire for information and data collection about the glass ceiling practices in the local industry. Information and data was collected using simple random sampling technique. The data was collected from Punjab. Questionnaire is based on 8 Glass Ceiling and Gender Discrimination constructs consisting of total 24 questionnaire statements.

URL: [http://www.elixirpublishers.com/articles/1365138015_57%20\(2013\)%2014111-14115.pdf](http://www.elixirpublishers.com/articles/1365138015_57%20(2013)%2014111-14115.pdf)

2. Mansoor, S H & Shah, F T (2013). Involving and Evaluating Employees Enhances Cynicism in Small and Medium Enterprises in Pakistan. *World Applied Sciences Journal* 26 (11): 1488-1495

Abstract:

The study is directed to analyse the impact of employee communication and performance evaluation and feedback on the level of cynicism in the SMEs of Punjab, Pakistan. The study also evaluates the impact of cynicism on the performance of the organization considering it as an important HR based Cost of Quality. The mediating impact of cynicism on the relationship of employee communication and organization performance and also on the relationship of performance evaluation and feedback and organization performance is also studied. The permanent salary based workforce of SMEs consisting of 5 - 250 workers has been chosen using stratified sampling technique for the study. The response rate was 46.3% bases on 600 questionnaires distributed. The increase in the employee communication and performance

evaluation and feedback in the SMEs cause the cynical behaviour to increase among the employees, which is not parallel to the previous literature, while the mediating relationships are found negative as described by previous studies. This shows still considerable effort is needed to decrease the cynicism in the organizations. The study is quite significant for the managers and owners of the SMEs who are working on shifting their focus towards the quality oriented TQM based organizations

URL: [http://www.idosi.org/wasj/wasj26\(11\)13/14.pdf](http://www.idosi.org/wasj/wasj26(11)13/14.pdf)

3. Butt, M R. Imran, S. Shah, F T & Jabbar, A (2013). Perception of Organizational Politics and Job Outcomes in a Public Sector Organization: The Moderating Role of Teamwork. *Middle-East Journal of Scientific Research*, 18 (9): 1268-1276

Abstract:

In this study, we proffered a model along with its empirical testing of moderating effect of importance of teamwork on organizational politics and job outcomes by applying multiple regression analysis on observations collected from 200 employees of a public sector bank in Pakistan. The results of three stages regression supported the authors proposed hypothesis that those employees who value teamwork in organization are less affected by organizational politics in term of job satisfaction and particularly, affective organizational commitment in contrary, to others who give little value to expression of teamwork. Therefore, based on statistically significant, interaction of teamwork and organizational politics in proposed model, it is infer that the potential adverse consequences of organizational politics can be mitigated through promoting importance of teamwork within organization.

URL: [http://www.idosi.org/mejsr/mejsr18\(9\)13/6.pdf](http://www.idosi.org/mejsr/mejsr18(9)13/6.pdf)

4. Iman, A., Raza, A S., Shah, F T & Raza, H (2013). Impact of Job Satisfaction on facet of Organizational Commitment (Affective, Continuance, Normative) Commitment: A study of Banking Employees of Pakistan. *World Applied Sciences Journal*. 28 (2), 271-277

Abstract:

Employees are an organizations human capital. Being, an important asset of an organization, employee's satisfaction is imperative to the organization. Organizations are concerned about the job satisfaction and organizational commitment of the employees. These are important considerations in the organizations like banking sector where employees have to face much stress especially at the workplace. Stress impact organizations and make them suffer in form of declined organizational commitment and job satisfaction. Job satisfaction is an important employee attitude that defines attitudinal behavior of employees at the workplace. The reason

to conduct this study was to empirically investigate the impact of job satisfaction on the facets of organizational commitment (affective commitment, continuance commitment and normative commitment). This study found a positive impact of job satisfaction on all the three aspects of organizational commitment (affective, normative and continuance commitment). This study also revealed that increase in job satisfaction increase the facets of the organizational commitment (affective, normative and continuance commitment). Analysis showed that in this study job satisfaction has a greater predictability for affective, then for normative and continuance commitment. Data was collected through questionnaire which is developed from empirical studies. Respondents from different cities of Punjab were contacted for the survey purpose. Respondents of the survey were the employees of banking sector of Pakistan, who were selected through convenience sampling. Correlation and regression analysis were used through SPSS-17 edition.

URL: [http://idosi.org/wasj/wasj28\(2\)13/21.pdf](http://idosi.org/wasj/wasj28(2)13/21.pdf)

5. Hussai, T & Rehman, S S. (2013). Stimulating Forces of Employees' Satisfaction: A study of Pakistan Textile Sector. *World Applied Sciences Journal*. 22 (5), 723-721

Abstract:

Human resource has been realized and validated asset of organizations' survival, growth and excellence. Modern era organizations equipped with technology, automation and state of art infrastructures find themselves helpless and shallow without high value human resource. In recent times retaining the valuable human resource, without ensuring their satisfaction towards organization, is emerging like an un-ignorable challenge. This study is to explore the role human resource management practices as motivating and inspiring drivers to ensure employees' satisfaction in the textile sector of Pakistan. A structured questionnaire was administrated as research instrument through field survey. Managers of textile units were the respondents of the study. Correlation analysis suggested a strong linkage between human resource management practices and employees' satisfaction. Further, multiple linear regression analysis explored significant positive effect 2 (adjusted R = 0.821) of five human resource management: provision of reward and compensation, ensuring employment security, existence of teamwork, implementation of performance appraisal system and provision of training and development, on shaping and guiding employees' satisfaction towards organizational job. Key words: Employees' satisfaction Human resource development Awards and compensations Responsibility and authority Performance evaluation and feedback

URL:http://www.academia.edu/3988921/Stimulating_Forces_of_Employees_Satisfaction_A_Study_of_Pakistan_Textile_Sector

6. Gondal, U H & Hussain, T. (2013). A Comparative Study of Intelligence Quotient and Emotional Intelligence: Effect on Employees' Performance. *Asian Journal of Business Management*. 5(1), 153-162

Abstract:

The study aims to explore the cognitive and emotional aspects of intelligence and its related behavioral and psychological outcomes on employees' performance. Intelligence is considered as an important predictor for analyzing the employees' capabilities and their behaviors to perform the particular task. This is a quantitative cross-sectional study based on 300 employees selected from different organizations of telecom industry, Lahore. The study reveals interesting findings about the nature of the relationship between individuals' intelligence quotient level and their respective performance. Indicating a new line of research that Intelligence Quotient is found to be insignificantly related with employees' performance revealing that IQ alone is not sufficient for the success of employees. Whereas, emotional Intelligence is found to have significant relationship with employees' performance signifying that emotional intelligence is more important than Intelligence quotient at workplace. Study in the end offers practical implication for organizations that emotional intelligence measures can be used in conjunction with other sources of information and psychometric tests like Intelligence Quotient, to support the human resource for the purpose of improving the overall effectiveness of an organization.

URL: <http://maxwellsci.com/print/ajbm/v5-153-162.pdf>

7. Hussai, T & Rehman, S S. (2013). Do Human Resource Management Practices Inspire Employees' Retention? *Research Journal of Applied Sciences, Engineering and Technology* 6(19), 3625-3633

Abstract:

This study examines the relationship between the human resource management practices implemented by the organization and employees' motivated intention to stay and work effectively for the organization. Human resource management practices deployed in study are training and Development, development of teams, performance appraisal, internal communication system, employment security, person-organization fit, employee empowerment and reward and compensation. Four hundred questionnaires were distributed among the middle management cadre employees of textile industry, out of which, 303 questionnaires completed in all respects were received back with a response rate of 75.75%. It is explored that four human resource management practices: person-organization fit, employment security, communication and training and development are contributing strongly (adjusted R² = 0.782) in developing the employees' intentions to stay with organization. Further, strong positive inter-relationships were found between human resource management

practices and employees' retention. It is concluded that adoption of human resource management practices enhances employees' retain ability of organizations.

URL: <http://maxwellsci.com/print/rjaset/v6-3625-3633.pdf>

8. Ismail , M., & Kanwal, N. (2013). Alternative approach to fitting first-order model to the response surface methodology. *Pakistan Journal Commerce Social Science*.7 (1), 157-167

Abstract:

In this paper, we present the computational procedure of the First-Order Model in Response Surface Methodology (RSM) in a new dimension. Firstly, we fit the First-Order Model to a 2k design by applying Yates' technique to calculate the sum of squares of main effects and their interactions. Secondly, we prove that SS regression and SS linear are equivalent. Thirdly, we give a new idea for computing SS quadratic under the concept of unbalanced Completely Randomized Design. The formula used in this technique is numerically and mathematically equivalent to the existing technique. Lastly, we split the total variation in the responses into all possible sources with the help of a diagram.

URL: <http://www.iespk.net/publications/114.pdf>

9. Ismail , M., Shahbaz, M Q & Hanif, N. (2013). A New Cost Effective Estimator In The Presence Of Non-Response for Two-Phase Sampling. *Journal Teknologi* .63 (2)

Abstract:

In In this paper we have proposed a new estimator of population mean in the presence of non-response using information of a single auxiliary variable. We have obtained survey cost for the fixed variance of the proposed estimator and compared it with the cost obtained by Tabasum and Khan (2004) and Hansen Hurwitz (1946). After the comparison we saw that the cost of our proposed estimator is lesser than Tabasum and Khan (2004) and Hansen Hurwitz (1946) estimators.

URL: <http://www.jurnalteknologi.utm.my/index.php/jurnalteknologi/article/view/1903>

10. Mughal, A R. & Ismail , M. (2013). An Economic Reliability Efficient Group Acceptance Sampling Plans For Family Pareto Distributions. *Research Journal of Applied Sciences, Engineering and Technology* 6(24), 4646-4652

Abstract:

The present research study deals with an economic reliability efficient group acceptance sampling plan for time truncated tests which are based on the total number of failures

assuming that the life time of a product follows the family for Pareto distribution. This research is proposed when a multiple number of products as a group can be observed simultaneously in a tester. The minimum termination time required for a given group size and acceptance number is determined such that the producer and consumer risks are satisfied for specific standard of quality level, while the number of groups and the number of testers are pre-assumed. Comparison studies are made between the proposed plan and the existing plan on the basis of minimum termination time. Two real examples are also discussed.

URL: <http://maxwellsci.com/print/rjaset/v6-4646-4652.pdf>

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