

**INSIDE THIS  
ISSUE:**

<b>COVER STORY</b>	<b>2</b>
<b>HONOURS AND AWARDS</b>	<b>4</b>
<b>GREAT GRANTS</b>	<b>5</b>
<b>RESEARCH BUILDUP</b>	<b>7</b>
<b>NEW TO DE- PARTMENT</b>	<b>4</b>
<b>WORKSHOPS AND SEMI- NARS</b>	<b>9</b>
<b>STUDENT NEWS</b>	<b>14</b>
<b>IMPACT RE- SEARCH</b>	<b>18</b>

## GREETINGS FROM CHAIR

Dear Friends and Alumni of COMSATS Institute of Information Technology, Greetings from the Department of Chemical Engineering. I hope this latest edition of the *ChemE Connection* finds you well and happy. It's been a while since the last *issue* and in that time ChemE has made some exciting changes driven by the question; "How do we ensure our students have the skills and professional opportunities to succeed in this hyper-competitive world?" We have aggressively focused on curriculum reform and infrastructure investment resulting transformational



infusion of new instrumentation in many laboratories. Research infrastructure is expanding with the establishment of many research groups and induction of expert faculty that broadly supports department and institute activities. The department also have enhanced its research laboratories by acquiring very high tech equipment. Despite an economy that poses challenges for the state of education, I am confident Chemical Engineering Department is on track to produce future graduates who will be world-beaters. Visit our website <http://lahore.comsats.edu.pk/chemical/> regularly for much more departmental news.

## CONGRATULATIONS TO NEW

We are pleased to congratulate and welcome the new director of CIIT Lahore Campus, Prof. Dr. Qaisar Abbas, a graduate of Human Resource Development from Nankai University Tianjin, China. He has served CIIT at various positions such as Dean Faculty of Business Administration, Provost, Chief Proctor, Project Director of Infrastructure Development Project CIIT, Member of Campus Selection Committee, Convener Campus Inspection Committee, Convener Board of Studies of Management Sciences, and Member Board of Faculties of Business Administration and Information Sciences. We hope and pray that under his expertise, guidance and dedication, CIIT Lahore will navigate smoothly towards excellence.



## RESEARCH SPOTLIGHT

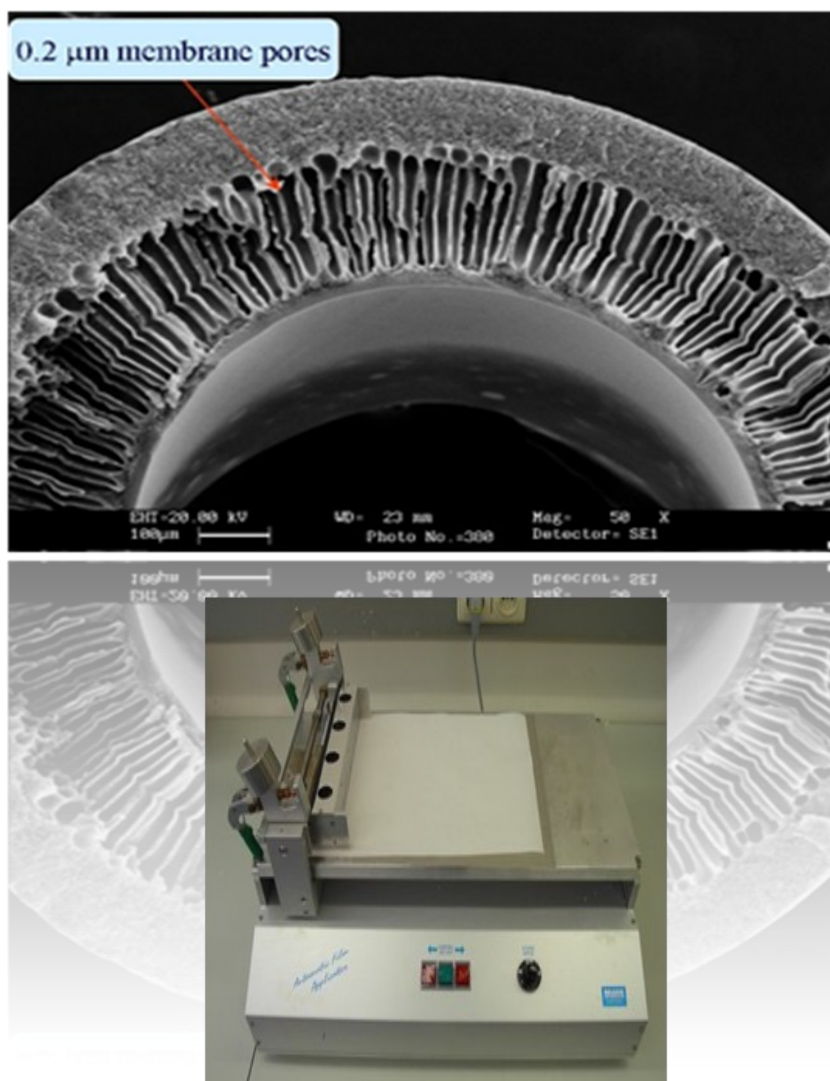
## Membrane Research @ CIIT Lahore

Dr. Asim Laeeq Khan

Membrane research is established at the Department of Chemical Engineering. The vision of this program is to control mass transport and conversions using selective, functional membranes. The mission of the program is to interact closely with fundamental science, perform fundamental studies on membrane transport and develop new membranes, modules and processes for the grand global challenges. The research group is also actively involved in the graduate program of Chemical Engineering Department, and has introduced several graduate course in the discipline. The research topics on Membrane Science and Technology can be clustered into four programs. **GaSep** addresses membrane based concepts for sustainable solutions for industrial gas separation applications. **SRNF-ChE** is a program that focuses on aspects related to solvent resistant nanofiltration applications. **Mem-Tran** tries to answer fundamental questions of mass transport through membranes. **NovMem** develops new interactive, tailored and task-specific membrane systems.

The research labs established by the group are equipped with state of the art equipment for synthesis, characterization and performance testing of membranes for different applications.

At the level of synthesis, the membrane lab is equipped with automated casting device (Doctor's blade) with the provision of casting at different casting speeds. Phase



Inversion, solution casting and dipcoating are the major techniques that are being used in the lab for the synthesis of membranes.

### Research Collaboration

The research group has a longterm and effective collaboration with Prof. Vankelecom's group at KU Leuven (Belgium) and Prof. Li's group at Dalian Institute of Chemical Physics (China). Several projects have been completed in collaboration with our academic partners. Efforts are being done to research out industrial collaborators for longterm and upscale testing of the synthesized membranes.



The mission of the program is to interact closely with fundamental science, perform fundamental studies on membrane transport and develop new membranes, modules and processes for the grand global challenges.

### Research Projects

The research group is currently involved in several research projects in the area of membrane synthesis, characterization and multiple applications. Few selected current projects are listed below:

- Development of next generation mixed matrix membranes for CO<sub>2</sub> capture (13 million PKR, Funded by Higher Education Commission, Pakistan)
- Functionalized ionic liquids based membranes for gas separation (Funded by Higher Education Commission, Pakistan)
- Fluorinated and Sulfonated PEEK based membranes for CO<sub>2</sub> capture (In Collaboration with Dalian Institute of Chemical Physics, China)



## FACULTY HONOURS AND AWARDS

### GREEN TALENTS 2015

Dr. Naim Rashid, Assistant Professor, Dept of Chemical Engineering won prestigious international award "Green Talent-2015".

The German Federal Ministry of Education and Research (BMBF) hosts exceedingly prestigious Green Talents - competition for young scientists-International Forum for High Potentials in Sustainable Develop-

ment on yearly basis to promote the international exchange of innovative green ideas. The award, under the patronage of Minister Professor Johanna Wanka, honours 25 young researchers each year. *This year (2015), almost 1000 applications were received from 90 countries.* The winners come from various countries and scientific disciplines and are



**The award-winners are recognized for their outstanding achievements in making our societies more sustainable. They come from numerous countries and scientific disciplines.**

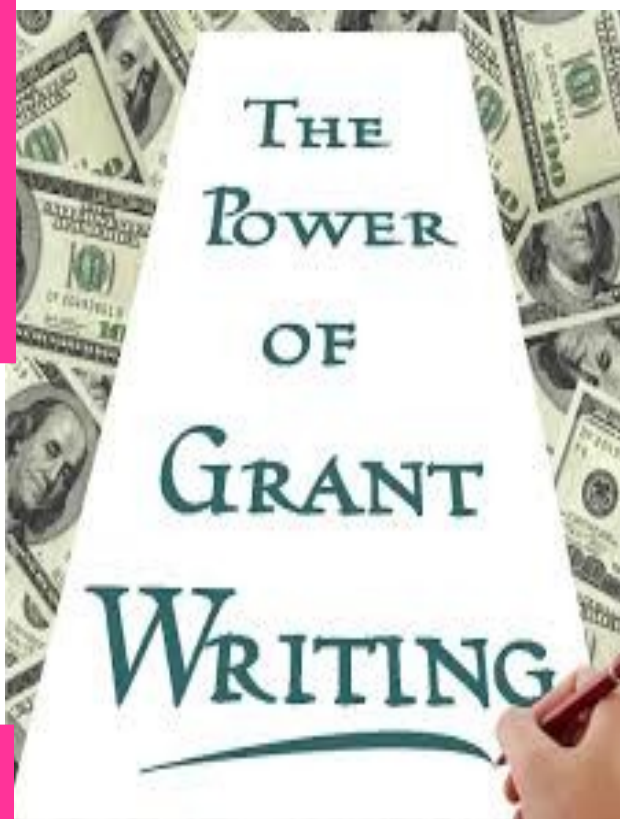


recognized for their outstanding achievements in making human societies more sustainable globally.

Selected by a high-ranking jury of German experts, the award-winners are granted unique access to the country's research elite. Each year, the winners of the competition are invited to participate in a two-week science forum in Germany, "Green Talents - International Forum for High-Potentials in Sustainable Development". The winners are also provided 3 month stay at any of the German institute for potential collaboration and knowledge sharing. This exciting journey grant enables them to have exclusive insights into the country's diverse research landscape. Depending on the thematic focus of each competition, the destinations are changed every year.

## GREAT GRANTS

Research Universities have become the fastest way to move the nation towards the knowledge-based economic country and in turn to achieve greater prosperity. There is increasing awareness in industrialized countries of the importance of scientific research in creating the foundations for technological change and economic competitiveness. Understanding the need of the hour, faculty of ChemE has worked hard to win many research grants. Details of these success stories are given below.



**ChemE has secured more than 120 million PKR research funding during the year 2015 with the help of its qualified**

Dr. Mohammad Saif ur Rehman was awarded a grant under HEC-National Research Program for Universities worth of 19.63 million PKR. Dr Saif will work on simultaneous biodiesel production and textile waste water treatment using microalgal advance deoxidation process.



The Department, under principal investigator Prof. Dr Asad Ullah Khan has received a grant for the collaborative project with Prof. Akalak Khan, North Dakota State University USA, "A sustainable Point-of-Use Filtration Unit for treating pesticide contaminated groundwater". It was awarded under Pakistan-United States Science and Technology Cooperation Program 2014 in the amount of 38million PKR for 2015-2018, with three years of renewals possible.

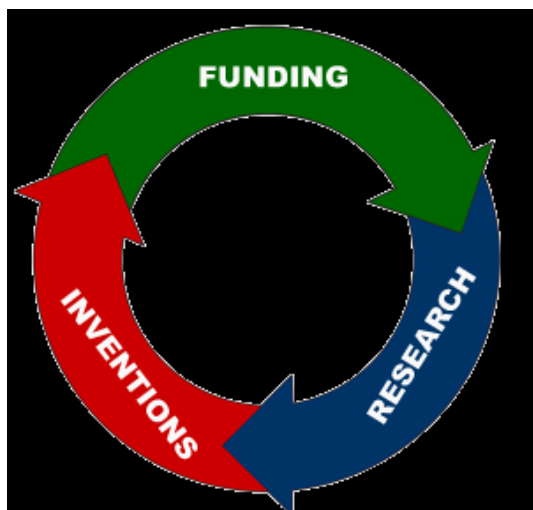
Dr. Asim Laiq Khan received the HEC-National Research Program for Universities award worth of 12.5 million PKR for synthesis of Next generation mixed matrix membranes. These membranes are used for CO<sub>2</sub> separation aiming at energy and environment.

## G R E A T   G R A N T S

Dr. Zulfiqar Ali received the HEC-National Research Program for Universities Award amounting 6.55 million PKR for research in the field of material sciences. He is working on the use of Layered Double Hydroxides as Potential Nanofiller in Polymeric Materials to Engineer Mechanical and Thermal Properties.



Dr. Robina Farooq won the HEC HEC-National Research Program for Universities grant worth 4.6 million PKR. Her area of research interest is Environmental engineering and she is working on biological decomposition of dyes effluents by using biological rotating disc contractor.



Dr. Asim Laiq Khan is the recipient of another two grants from HEC for the projects entitled “Next generation membranes based on ionic liquids for CO<sub>2</sub> capture” and “the study of hydrogenated amorphous carbon graded layer on compliant substrate by transmission electron microscopy”.



Dr. Maria Mustafa won the startup grant from Higher Education Commission of Pakistan for the project entitled “Development of inkjet printing system for printing two dimensional conductive patterns”.

Dr. Lubna Sherin was awarded startup grant from Higher Education Commission of Pakistan for the project entitled “Design and synthesis of polyphenol derivatives as potential Anticancer Agents”.



## RESEARCH BUILDUP

There are many research groups in the Chemical Engineering Department who are working in diverse research fields and projects to train students.



### Process and Energy Systems Engineering Centre (PRESTIGE)

Focal Person  
Dr. Aqeel Ahmed Bazmi

### Biomass Conversion Research Group (BCRG)

Focal Person  
Dr. Moinuddin Ghauri

### Catalysis & Reaction Engineering (CRE)

Focal Person  
Dr. Murid Hussain

### Environmental Research Group

Focal Person  
Dr. Robina Farooq

### Environmental (Hydrophobicity) Research Group

Focal Person  
Dr. Zaki Ahmad

### Membrane Systems Research Group

Focal Person  
Dr. Asim Laeeq Khan

### Polymer and Composite Materials Group

Focal Person  
Dr. Zulfiqar

### Microfluidics research group

Focal Person  
Dr. Fahad Rehman

### Advanced Materials Research Group

Focal Person  
Dr. Dr. Noaman ul Haq  
Dr. Shahid Nazir

### Biochemical Engineering

Focal Person  
Dr. Muhammad Saif Ur Rehman  
Dr. Naim Rashid

### Nanoscience and Technology Research group (NST)

Focal Person  
Dr. Sara Riaz

### Modeling and Simulation

Focal Person  
Eng. Tariq Raza

## NEW TO DEPARTMENT



The Department continues to grow, this year with the addition of new faculty members. Dr. Naim Rashid joined ChemE as Assist. Professor. He brings expertise in the areas of renewable energy production (focus on biofuels), water and waste water treatment. Dr. Naim Rashid earned his PhD (Environmental Engineering) from Korea Advanced Institute of Science and Technology (KAIST), South Korea.



Dr. Ume Salma Amjad joined CIIT Lahore as an Assistant Professor in March 2015. She earned her PhD (Chemical Engineering) from Politecnico di Torino Italy. Her research interests include reaction engineering, catalysis, nanotechnology and energy.

Team work  
divides the  
task and  
multiplies the  
success.



Mr. Muhammad Sarfraz Akram recently joined the Department. As Assist. Professor. His research interests are Heterogeneous catalysis, reaction kinetics, thermo physical properties measurement and thermodynamic modeling of binary liquid mixtures.

Lecturer Mian Hamood ur Rehman earned his BSc Chemical Engineering degree from NFC Institute of Engineering and Technological Training, Multan and Master of Applied Science in Chemical Engineering from Ryerson University, Canada. His area of research is biochemical engineering.



Hasan Qayyum Chohan has joined the department as Lab. Engineer. He holds a B. Sc. And M. Sc. Degree in Chemical Engineering from CIIT Lahore. His research interests are Kinetic Studies, Corrosion Studies, Advanced Materials, Biomass and Membranes.

Lab. Engineer Ms. Azka Khalid is graduated from Department of Chemical Engineering UET Lahore in 2014. Currently, she is enrolled in MSc program at CIIT Lahore and working on a research project of Diesel Engines.



Muhammad Haris Hamayun has joined the department as Research Associate. He did B.Sc. Chemical Engineering from Institute of Chemical Engineering & Technology, University of the Punjab with distinction by securing 3 Gold Medals for top position. His research area includes Biomass Gasification and Energy optimization techniques.



## WORKSHOPS AND SEMINARS

### INTERNATIONAL CONFERENCE ON ENERGY SYSTEMS FOR SUSTAINABLE DEVELOPMENT (ESSD-2014)

First International Conference on Energy Systems for Sustainable Development (**ESSD-2014**) was held on 20 – 22 May 2015 in Lahore, Pakistan. This conference was the pet project of COMSATS Institute of Information Technology, Lahore and Dawood University of Engineering & Technology, Karachi to bring together the best of brains for the presentation of technological advances, latest research and policies in the fields of theoretical, experimental, and applied aspects of energy and Sustainable Development. The forum provided brainstorming sessions to researchers, engineers, scientists, scholars/students and policy makers in these sectors on the direction and flow of technology for the nation and the world in the next decade.







The Conference brought together International experts and representatives from academia, industry, and authorities to exchange latest advances in knowledge and technological progress, and to share experience in economic and environmental aspects of energy developments. Idea of this International Conference was how best Pakistan can use the energy resources to meet growing energy demand, overcome energy crisis and achieve sustainable development.

The scope of the ESSD Conference Series was continue to successfully cover (but not confined to) the following areas:

1. Power & Energy Systems
2. Energy, Environment and Sustainable Development
3. Energy Management

The conference also includes paper submission and poster competition. A large number of participants





## 360 IDEA CHALLENGE

The Environmental Society of Pakistan and Department of Chemical Engineering, CIIT, Lahore, jointly organized '360 Sec Idea Challenge on Environmental Sustainability' at the COMSATS Institute of Information Technology (CIIT). The objective of the contest was to provide a platform to research students working on environmental sustainability. A large number

of research students from Punjab University, Lahore College for Women University, University of Agriculture, Faisalabad, PMAS-Arid Agriculture University, Rawalpindi, NUST, University of Gujrat, Government College University, Faisalabad, Government College University, Lahore, and CIIT, Lahore, participated in the contest. Professor Dr. Mahmood Ahmad Bodla, director

of the CIIT, Lahore, said "The debate on sustainability in general and environmental sustainability in specific has gained much attention since the beginning of 21st century. The world population has grown over seven billion that has already led to a strong competition between resources and consumers. If we continue to consume infinite resources at our current pace, we will

# THINK GREEN



What we do  
today **creates**  
tomorrow.

The jury comprised Professor Dr Muhammad Arshad, Professor Dr Firdous-e-Bareen, Professor Dr Arifa Tahir, Professor Dr Asad Ullah Khan, Dr Sajid Mehmood, Dr Asim Khan, Dr M Shafiq, and Dr M Saif Ur Rehman. Sadaqat Ali got first prize, Amin Khan got second prize, and Rubab Khalid stood third in the competition. President of Environmental Society of Pakistan Prof Dr M Arshad, stressed the young researchers to create a love for scientific research. "You can never make a breakthrough research unless you develop a passion, commitment, dedication and devotion for science."



## Workshop on “Supervising and Mentoring Research Students”



The Department of Chemical Engineering, CIIT Lahore, in collaboration with the Environmental Society of Pakistan, and Pakistan Membrane Society, has jointly organized CIIT Workshop on “Supervising & Research Students” for young faculty members of various universities. This workshop has been designed for the early career faculty members such as Assistant Professors, Lecturers, IPFPs (Preferably fresh PhDs) to transform them from a research student to a research group leader. As most of the PhD students either in Pakistan or abroad, they are not properly trained for the faculty position, so, they lack basic skills about establishing and then leading a research team. This activity will provide them preliminary training to start their successful career in research supervision. A large number of faculty members from Punjab University, University of Agriculture, Faisalabad, University of Lahore, University of Gujrat, Government College Women University, Sialkot, the Women University, Multan, CIIT, Lahore and Vehari.



**“EVERY GREAT ADVANCE IN SCIENCE HAS ISSUED FROM A  
NEW AUDACITY OF IMAGINATION” JOHN DEWEY**



The learned resource person's team was comprised of Prof. Dr. Muhammad Arshad (Dean, Agriculture, UAF), Prof. Dr. Asad Ullah Khan (Chairman, CIIT), Dr. Sajid Mehmood (Chairman, UoG), Dr. Asim Khan (CIIT), Dr. Naim Rashid (CIIT), and Dr. M. Saif Ur Rehman (Organizing Secretary).





## STUDENTS NEWS

## ChemE Undergrads Explore Local Opportunities

Industrial visits are great source of learning as they as it provide a vision to analyze the industrial processes through different perspectives. Department of chemical engineering scheduled industrial tours to various industries for the learning enhancement of the students.

FA13 batch visited Best-way cement industry a prestigious industry of Pakistan. Around 40 students of the class enjoyed this industrial tour.







SP13 batch, Semester 5 with 42 students along with 3 faculty members including DR. ZAKIR KHAN, MR. NABEEL AHMED and Ms. AYESHA SADIQA visited Sitara Chemicals Faisalabad on 4<sup>th</sup> JUNE 2015.



## IMPACT RESEARCH

During the year 2014-2015, faculty produced large number of research publications, some of which were successful in securing place in hefty impact factor journals. Details of this published research are given below.

S. Yusup, Z. Khan, M.M. Ahmad, N.A. Rashidi, Optimization of hydrogen production in in-situ catalytic adsorption (ICA) steam gasification based on Response Surface Methodology, Biomass and Bio-energy, 60, P 98-107, 2014.

Z. Khan, S. Yusup, M.M. Ahmad, N.A. Rashidi, Integrated catalytic adsorption (ICA) steam gasification system for enhanced hydrogen production using palm kernel shell, International Journal of Hydrogen Energy, 39, 39286-3929, 2014.

Tauqeer Abbas, Aqeel Ahmed Bazmi, Abdul Waheed Bhutto, Gholamreza Zahedi, Greener energy: Issues and challenges for Pakistan-geothermal energy prospective, Renewable & Sustainable Energy Reviews, P 258-269, 2014.

Ibn-e-Hassan, Noraini Abu Talib, Amjad Riaz, Muhammad Jawad Iqbal, Influence of national and engineering culture on team role selection, International Journal of Technology and Design Education, 24 (1), 91-105, 2014.

Mian Hasnain Nawaz, Sara Riaz & Feng Liu, Atomic Force Microscopic Investigations of Fibrils Formed by Complexation of Monochelic Polystyrenic Porphyrin and PEGylated Fullerene (C<sub>60</sub>), Journal of Dispersion Science and Technology, 35, 753-756, 2014.

Sara Riaz, LuLu Qu, Essy Kouadio Fodjo, Wei Ma and Yi-Tao Long, Thioanisole induced size-selective fragmentation of gold nanoparticles, RSC Advances, 4, 14031-14034, 2014.

Abrar Inayat, Murni M Melati, M I Abdul Mutlab, Suzana Yusup, Zakir Khan, Mathematical Modelling for Hydrogen Production from Steam Gasification of Cellulose, Applied Mechanics and Materials, 625, 176-179, 2014.

Majid Niaz Akhtar, Muhammad Azhar Khan, Mukhtar Ahmad, G. Murtaza, Rizwan Raza, S.F. Shaukat, M.H. Asif, Nadeem Nasir, Ghazanfar Abbas, M. S. Nazir, M.R. Raza, Y<sub>3</sub>Fe<sub>5</sub>O<sub>12</sub> nanoparticulate garnet ferrites: Comprehensive study on the synthesis and characterization fabricated by various routes, Journal of Magnetism and Magnetic Materials, 386, 393-400, 2014.

Akhtar, M. N., Khan, M. A., Raza, M. R., Ahmad, M., Murtaza, G., Raza, R., Shaukat, S. F., Asif, M. H., Saleem, M. & Nazir, M. S, Structural, morphological, dielectric and magnetic characterizations of Ni<sub>0.6</sub>Cu<sub>0.2</sub>Zn<sub>0.2</sub>Fe<sub>2</sub>O<sub>4</sub> (NCZF/MWCNTs/PVDF) nanocomposites for multilayer chip inductor (MLCI) applications, Ceramics International, 40, 15821-15829, 2014.

## IMPACT RESEARCH

Z.H.M. Yadzir , M.Y. Shukor , A. Ahmad , M.S. Nazir , S.M.U. Shah , M.A. Abdullah, Phenol removal by newly isolated *Acinetobacter baumannii* strain Serdang 1 in a packed-bed column reactor, *Desalination and Water Treatment* , DOI: 10.1080/19443994.2015.1063459.

Z. Khan, S. Yusup, M.M. Ahmad, Bridgid Lai Fui Chin, Hydrogen production from palm kernel shell via integrated catalytic adsorption (ICA) steam gasification, *Energy Conversion and Management*, 87, 1224-1230, 2014.

Z. Khan, S. Yusup, M.M. Ahmad, Performance study of Ni catalyst with quicklime (CaO) as CO<sub>2</sub> adsorbent in palm kernel shell steam gasification for hydrogen production, *Advance Materials Research*, 917, 283-291, 2014.

Fahad Rehman, Gareth J.D.Medley , Hemaka Bandulasena , William B. J. Zimmerman, Fluidic oscillator-mediated microbubble generation to provide cost effective mass transfer and mixing efficiency to the waste water treatment plants, *Environmental Research*, 137, 32-39, 2014.

Tariq Mahmood, Mazhar Amjad Gilani, Sobia Tabassum, Farhan Ahmed Khan and Ather Farooq Khan, DFT Studies of biphenyl derivatives, potential application as chiral dopants for liquid crystals, *Journal of Chemical Society of Pakistan*., 36(3), 498-502, 2014.

Saira Afzal, Sobia Tabassum, Mazhar Amjad Gilani, Natasha Hussain, Robina Farooq, Afsar Khan, Attiq-ur-Rehman, Asma Tufail Shah and Saba Zahid, Total Phenolic Content, in vitro Radical Scavenging and Antimicrobial Activities of whole plant *Rumex hastatus*, *Science International*, 42061, 723-729, 2014.

Maria Siddique, Robina Farooq, Gareth. J. Price, Synergistic effects of combining ultrasound with the Fenton process in the degradation of Reactive Blue 19, *Ultrasound Sonochemistry*, 21 (3), 1206-1212, 2014.

Maria Siddique, Robina Farooq, Romana Khan, Athar Farooq Khan, Improved photocatalytic activity of TiO<sub>2</sub> coupling ultrasound for Reactive Blue 19, *Journal of Chemical Society of Pakistan*, 36 (1), 37-43, 2014.

Qaisar Mahmood, Robina Farooq, Biological Treatment of the Dye Reactive Blue-19 by Cattails and Anaerobic Bacterial Consortia, *Toxicological & Environmental Chemistry*, 42339, 2014.

Gugan Jabeen, Robina Farooq, Asad U Khan, Aqeel A Khan, Acetyl Co A Pathway for Biosynthesis of Organics, *Asian Journal of Chemistry*, 26 (24), 2014.

Nadeem Ahmad, M.B. Khan, Xiaoyan Ma, Noaman Ul-Haq, The Influence of Cross-linking/Chain extension Structures on Mechanical Properties of HTPB based Polyurethane Elastomers, *Arabian Journal of Science and Engineering*, 39 (2014) 43-51 *Journal of Analytical and Applied*



## IMPACT RESEARCH

Khalid Nawaz, Muhammad Ayub, Noaman Ul-Haq, M.B.Khan, Muhammad Bilal Khan Niazi, Arshad Hussain, The Effect of Graphene nanosheets on the Mechanical Properties of Polyvinylchloride, Polymer Composites (Article in Press)

Afrasyab Khan, Noaman Ul-Haq, Imran Rafiq Chughtai, Ajmal Shah, Khairuddin Sanaullah, Experimental Investigations of the Interface between Steam and Water Two Phase Flows, International Journal of Heat and Mass Transfer, 73 (2014) 521–532

Khalid Nawaz, Muhammad Ayub, Noaman Ul-Haq, M.B.Khan, Muhammad Bilal Khan Niazi, Arshad Hussain, Effects of selected size of graphene nanosheets on the mechanical properties of Polyacrylonitrile Polymer, Fibers and Polymers, 15 (2014) 2040 – 2044

Shameel Farhan, Ru-Min Wang, Hao Jiang, Noaman Ul-Haq, *Preparation and Characterization of Carbon Foam derived from Pitch and Phenolic Resin using a Soft Templating Method*, Journal of Analytical and Applied Pyrolysis (Article in Press)

Noaman Ul-Haq, Joong Kon Park, Optical Resolution of Phenylalanine Using D-Phe-Imprinted Poly (acrylic acid-co-acrylonitrile) Membrane — pH Effect on performance, Journal of Chemical Society of Pakistan, 36 (2014) 561 – 567

Noaman Ul-Haq, Joong Kon Park, Effect of Template on Chiral Separation of Phenylalanine using Molecularly Imprinted Polymer, Journal of Chemical Society of Pakistan, 36 (2014) 606 – 613

Khairuddin Sanaullah, Afrasyab Khan, Mohammad S Takriff, Hushairi Zen, Ajmal Shah, Imran R Chughtai, Tahir Jamil, Lim S Fong, Noaman Ul-Haq, Determining potential of subcooling to attenuate hydrodynamic instabilities for steam-water two phase flow. International Journal of Heat and Mass Transfer 84 (2015) 178–197

Dooa Arif, Muhammad Bilal Khan Niazi, Noaman Ul-Haq, Muhammad Nabeel Anwar, Emran Hashmi, Preparation of Antibacterial Cotton Fabric Using Chitosan-silver Nanoparticles, Fibers and Polymers, 16 (2015) 1519 – 1526

Muhammad Yar, Marek Bajda, Sohail Shahzad, Nisar Ullah, Muhammad Ashraf, Mazhar Amjad Gilani, Abdul Rauf, Ayesha Shaukat, Organocatalyzed solvent free an efficient novel synthesis of 2,4,5-trisubstituted imidazoles for  $\alpha$ -glucosidase inhibition to treat diabetes, *Bioorganic Chemistry*, 58, 65–71, 2015.

Muhammad Nadeem Arshad, Abdullah M. Asiri, Khalid A. Alamry, Tariq Mahmood, Mazhar Amjad Gilani, Khurshid Ayub, and Abdul hadi Saleh Birenji, Synthesis, Crystal Structure, Spectroscopic and Density Functional Theory (DFT) Study of *N*-[3-anthracen-9-yl-1-(4-bromo-phenyl)-allylidene]-*N*-benzenesulfonohydrazine, *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, 142, 364–374, 2015.

Maximilian Koppenwallner, Eduard Rais, Magdalena Uzarewicz-Baig, Sobia Tabassum, Mazhar Amjad Gilani and René Wilhelm, Synthesis of New Camphor Based Carbene Ligands and Their

## IMPACT RESEARCH

Application in a Copper Catalyzed Michael Addition with  $B_2Pin_2$ , *Synthesis*, 47, 789-800, 2015.

Rizwan Sheikh, Golisten N. Shao, Zakir Khan, Nadir Abbas, Hee-Taik Kim, Yeung-Ho Park, Esterification of Oleic acid by heteropolyacid/ $TiO_2-SiO_2$  catalysts synthesized from less expensive precursors, *Asia-Pacific Journal of Chemical Engineering*, 10, 339-3346, 2015.

M. Ahmad, A. Amin, M.S. Akram, Abdullah, M.R. Usman; Characterization and Rheological Behavior of Various Pakistani Crude oils, *Brazilian Journal of Petroleum and Gas* (accepted manuscript), 2015.

M.S. Akram, D. Munir, M.R. Usman; Associative adsorption kinetics: a novel kinetic model for the dehydrogenation of methylcyclohexane, *Progress in Reaction Kinetics and Mechanism*, vol. 39, no. 4, pp. 404-417, 2014

S. D. Hojniak, I. P. Silverwood, A. L. Khan, I. F. J. Vankelecom, K. Binnemans, Highly Selective Separation of Carbon Dioxide from Nitrogen and Methane by Nitrile/Glycol-Difunctionalized Ionic Liquids in Supported Ionic Liquid Membranes (SILMs), *Journal of Physical Chemistry B*, 118 (2014) 7440.

A. L. Khan, S. P. Sree, J. A. Martens, M. T. Raza, I. F. J. Vankelecom, Mixed Matrix Membranes comprising of Matrimid and Mesoporous COK-12: Preparation and Gas Separation Properties, *Journal of Membrane Science* (Accepted for publication; In Press).

M. W. Anjum, F. Clippel, J. Didden, A. L. Khan, S. Couck, G. V. Baron, I. F. J. Vankelecom, Polyimide mixed matrix membranes for  $CO_2$  separations using carbon-silica nanocomposite fillers, *Journal of Membrane Science* (Accepted for publication; In Press).

Muhammad Shahzad Khurram, Jeong-Hoo Choi, Yoo Sube Won, A Reum Jeong, Young Cheol Park, Ho-Jung Ryu and Chang-Keun Yi " Effects of angle on the transport velocity in an inclined fluidized-bed" *Korean Journal of Chemical Engineering*, accepted for publication, Ref.: Ms. No. KJCE-D-15-00184R2 (2015).

Muhammad Shahzad Khurram , Jeong-Hoo Choi, Yoo Sube Won , A-Reum Jeong and Ho-Jung Ryu, " Relationship between Solid Flow Rate and Pressure Drop in the Riser of a Pressurized Circulating Fluidized Bed" *Journal of Chemical Engineering of Japan*, Vol. xx, No. x, pp. 1–7, 2015 (accepted).

D. Cho, J.-H. Choi, M. S. Khurram, S.-H. Jo, H.-J. Ryu, Y. C. Park and C.-K. Yi, "Solids circulation rate and static bed height in a riser of a circulating fluidized bed," *Korean J. Chem. Eng.*, 32(2), 284-291 (2014).

M. S. Khurram, K. Shahzad, A. Ahmed, R. Haide2, M. Ghauri, "Kinetic Study of Metal-EDTA Complex Formation and Metal-to-Metal Exchange" *JPICHe* 42 (2) 91-99 (2014).

## IMPACT RESEARCH

A comparative study on steam and oxidative steam reforming of methane with noble metal catalysts. In: 3rd North American Symposium on Chemical Reaction Engineering (NASCRE-3), Houston (TX), USA, 17-20/03/2013

Amjad U., Gonçalves Lenzi G., Camargo Fernandes-Machado N.R., Specchia S. (2014) MgO and Nb<sub>2</sub>O<sub>5</sub> oxides used as supports for Ru-based catalysts for methane steam reforming reaction. In: International Symposium on Air & Water Pollution Abatement Catalysis - AWPAC2014, Krakow (Poland), 1-5/09/2014. p. 59

Amjad U., Gonçalves Lenzi G., Camargo Fernandes-Machado N.R., Specchia S. (2014) MgO and Nb<sub>2</sub>O<sub>5</sub> oxides used as supports for Ru-based catalysts for methane steam reforming reaction. In: Catalysis Today doi:10.1016/j.cattod.2015.02.010

Raza, R., Ahmad, M., A., Iqbal, J., Akram, N., Gao, Z., Javed, S., Zhu, B., (2014) Ce<sub>0.8</sub>(SmZr)<sub>0.2</sub>O<sub>2</sub>-carbonate nanocomposite electrolyte for solid oxide fuel cell: International Journal of Energy Research (DOI: 10.1002/er.3150).

Iqbal, J., Z. Ali, Ulrich, J., (2014) Crystalline phase change particles: Chemical Engineering Communications (Under Review).

Ali, Z., Lee, H., H., Iqbal, J., Ilisch, S., Pham, T., Heinrich, G., Radusch, H., J., (2014) Selective localization and migration of nanoclay in blend of hydrogenated nitrile butadiene rubber and epoxidized natural rubber; an online evaluation: Composites Science and Technology (Submitted).

I.M.Inuwa, Azman Hassan, S.A.Samsudin, M.K.Mohamad Haafiz, M. Jawaid, K. Majeed and N.C.Abdul Razaka. Characterization and Mechanical Properties of Exfoliated Graphite Nanoplatelets Reinforced Polyethylene terephthalate/ Polypropylene Composites. Journal of Applied Polymer science. 2014. 131(15)

Majeed, K., Hassan, A., and Bakar, A.A. Influence of varying amounts of MMT on tensile, barrier and thermal properties of RH/MMT hybrid filler filled low density polyethylene nanocomposite films. Journal of Thermoplastic Composite materials. 2014

Reza Arjmandi, Azman Hassan, Khaliq Majeed, and Zainoha Zakaria. Rice Husk Filled Polymer Composites. International Journal of Polymer Science. 2015

Khaliq Majeed, Azman Hassan and Aznizam Abu Bakar. Barrier, Biodegradation, and mechanical properties of (Rice husk)/(Montmorillonite) hybrid filler-filled low-density polyethylene nanocomposite films. Journal of Vinyl & Additive technology. 2015

Majeed, K., Hassan, A., and Bakar, A.A. Influence of maleic anhydride-grafted polyethylene compatibiliser on the tensile, oxygen barrier and thermal properties of rice husk and nanoclay-filled low-density polyethylene composite films. Journal of Plastic Film and Sheeting. 2014. 30 (2):120-140



## IMPACT RESEARCH

Sherin, L., Mustafa, M. and Shujaat, S. , Evaluation of Terminalia bellerica Roxb. Leaf extracted in different solvents for antioxidant activities, Asian. J. Chem. 27(12), (2015).

Maria Mustafa, Lubna Sherin, Hyung Chan Kim, Yun Woo Lee, Kyung Hyun Choi Fabrication and Conduction Mechanism Evaluation of Polyfluorene Polymeric Schottky Diode, Polymers for Advanced Technologies, 26(9):1109-1113 (2015).

M. Shoaib, N. Mahmood, H. Hussain, Z. Ali, A.U. Haq, A.U. Khan, Application of various diamines as chain extenders in polyurethanes to prepare polyurethane urea elastomers and their characterization, Submitted : Journal of Elastomers and Plastics 2015.

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### **STUDENTS WIN CONTEST FOR MEMBRANE TECHNOLOGY**

Final Year students of ChE Department participated in “ALL PAKISTAN PROJECT AND POSTER COMPETITION” held in University of Gujrat 2015 and secured **second position** in the competition. Dr. Asim Laeeq Khan supervised the students Khurshed Ahmed, Sanabil Mirza, Mirah Tamazir and Shaoor Javaid Alvi who represented the poster entitled “ENHANCEMENT OF AMMONIA PRODUCTION BY HYDROGEN RECOVERY USING MEMBRANE TECHNOLOGY”.



infusion of new instrumentation in many laboratories. Research infrastructure is expanding with the establishment of many research groups and induction of expert faculty that broadly supports department and institute activities. The department also have enhanced its its research laboratories by acquiring very high tech equipment. Despite an economy that poses challenges for the state of education, I am confident Chemical Engineering Department is on track to produce future graduates who will be world-beaters. Visit our website <http://lahore.comsats.edu.pk/chemical/> regularly for much more departmental news.

Dr. Asad Ullah Khan  
Professor and Chair



