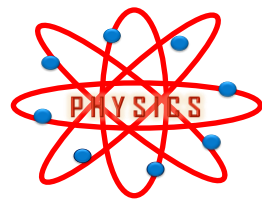




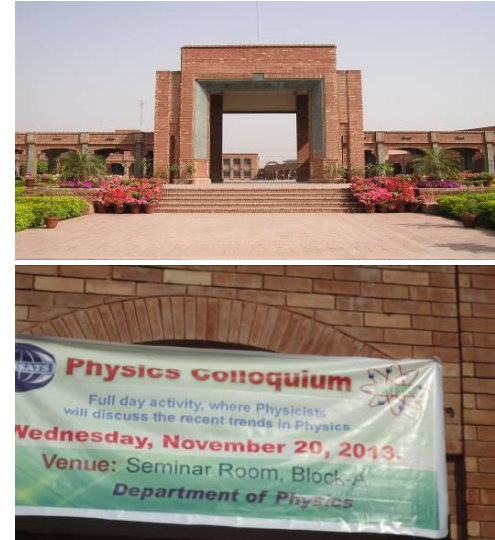
Physics Colloquium



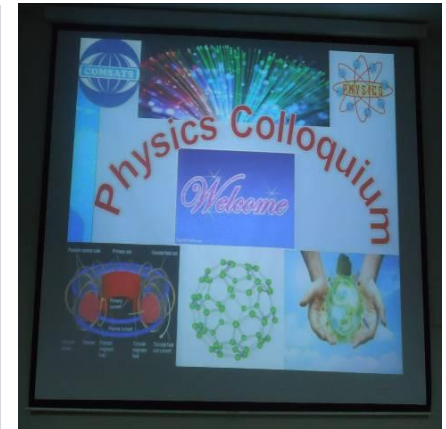
Physics Department, COMSATS Institute of Information Technology, Lahore

Physics Colloquium, in each semester, has become an **identity of the Department**. Subsequent to two successful Physics Colloquiums in FA12 and SP13 respectively, 3rd Colloquium was arranged on November 20, 2013 at Physics Department, CIIT Lahore. The mentioned activity was designed on the theme of Public-Private partnership. Public and private universities, R&D organizations and different companies from private sector were invited to host the event. **Physicists from diverse backgrounds shared their views and reviews about the propagation of science to worldly generations.** The main purpose of the gathering was to introduce and motivate students towards the new research trends within the scientific community and how various laws and theories can be pictured into reality for the material well-being of the serving humanity.

Faculty members and students from different Colleges/Universities were cordially invited to participate in the event. Free registrations, lunch and Refreshment were offered for the participants in order to boost the activity.



The activity was started with the opening remarks from **Prof. Dr. Saleem Farooq Shaukat**, who explained the objectives of the meeting and welcomed the honorable guests. A brief introduction of the faculty, highlighting their research contributions was also presented. He informed the guests about the largest number of Physics PhD faculty at Lahore and about cutting-edge multidisciplinary research areas of Nanotechnology, Energy, Plasma Physics and RF and Optoelectronics at the department. He also shared the success stories of the department in 2013 with the guests.



Prof. Dr. Muhammad Zafar Iqbal, Advisor at COMSATS Institute of Information Technology, Islamabad, made the key-note address titled **On the Shoulders of Giants - Lives of Some All times Greats in Physics and Math**.

His talk was started with the famous saying from the letters of Isaac Newton stating, **"If I have seen it further it is by standing upon the shoulders of giants"**. During his motivational and interactive session, Prof. Zafar talked about the lives of some of the all time great mathematicians and physicists of both classical and modern era. This included discussion about great personalities of Gauss, Riemann, Van-der-Waal, Dirac and Feynman who put forward many principles and theories which led the basis for the formulism of modern sciences and its inventions. Prof. Zafar also suggested various readings including books like *Prime Obsession by John Derbyshire*, *Surely You're Joking, Mr. Feynman by Richard P. Feynman* and *The Strangest Man by Grahm Farmello*. The discussion was closed with the concluding remark the students should be motivated by giving such examples to show the heights people have achieved.



Prof. Hassan A. Shah Chairman Physics Dept. Government College University, Lahore, gave an overview of the various kinds of space plasmas and highlighted how matter is generally distributed within the cosmos in one or the other form of plasmas. He started with the basic introduction of plasma formation while giving examples of the plasma domination within the classical and quantum regime. Prof. Hassan also stressed upon the pioneer contributions by various scientists including names like *Landau, Atkinson and Appleton*. During his talk, Prof. Hassan explained various layers of plasmas, the Sun is composed of and how the change in plasma activities within the sun are affecting earth's environment.



The session was followed by a sumptuous tea break in the Executive Café Lounge of the campus for informal discussion with speakers.



Dr. Zahida Ehsan, Assistant Professor Physics Dept. CIIT Lahore, gave an introductory talk on the importance of Plasma Physics. She spoke about the world's largest fusion energy project, *ITER (International Thermonuclear Experimental Reactor)* which is expected to produce 500 megawatts of fusion power for at least 500 seconds. She also mentioned about the recent successful development of *Glass Spherical Tokamak (GLAST)*, a tokamak developed by the team working in National Tokamak Fusion Program, Islamabad-Pakistan. She also briefly explained the *inertial confinement fusion (ICF)* and very recent results from the field. This was done to promote the importance of the Plasma Sciences which has applications both in space and Laboratory.



Dr. Hassan Jafri from Mirpur University of Science and Technology (MUST), Azad Kashmir, delivered a talk on **nano-particle driven characterization of single molecules**. The interest has been driven by the present need of downscaling integrated electronics to build faster and efficient data processors and storage units. This has been a very informative session for the students who learned the very basics of device fabrication and testing. During his talk, Dr. Hassan gave a brief introduction to molecular junctions, charge transfer mechanisms and present day challenges towards the successful realization of the idea.



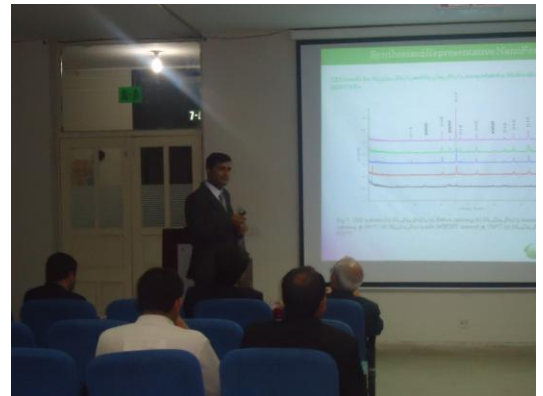


Dr. Mashkoor Ahmad, Senior Scientist at PINSTECH Islamabad, spoke about the applications of *Zinc Oxide based nanostructures* for advanced applications. Various geometries of ZnO nanowires were discussed along with their electrical and optical behaviors.

Lunch Break + Group Photo



The session resumed after the lunch break with the discussion about the magnetic nano-ferrites for microwave applications by **Dr. Majid Niaz Akhtar**, Assistant Professor Physics Dept. CIIT Lahore. During his talk, Dr Majid emphasized upon the importance of nanotechnology for the underground detection of oil and gas reserves. Based on a hydrocarbon detection system, he reported upon the successful detection of oil 4000 meters below the sea floor. He also added that *magnetic nanoferrites* with *CNTF* and *feeders* are better solutions for microwave application.



The last talk of the session was delivered by **Dr. Ishrat Sultana**, Assistant Professor Physics Dept. CIIT Lahore, on the subject of magnetic properties of one-dimensional embedded Nickel nanostructures in gold nanowires. Highly coercive Nickel nanostructures embedded in gold matrix, fabricated by electrochemical deposition process on anodized alumina oxide templates were reported. Dr. Ishrat also discussed the temperature dependent behavior of these nanostructures. The results were supported via theoretical models based on Kneller's and Bloch's Law.

The guest speakers were presented with shields and certificates. The ceremony was closed at 6:30 pm with the concluding remarks and a note of thanks by Prof. Saleem Farooq Shaukat.

