Physical Research Laboratory, Ahmedabad

Colloquium 18-08

Speaker : Prof. Deshdeep Sahdev
QuazarTech/(Ex-)IIT Kanpur

Title : A Practical Approach To Strengthening Our Scientific Ecosystem

Time : Wednesday, 01 August 2018, 16.00 hrs.
Venue : K. R. Ramanathan Auditorium, PRL

Abstract

It is an interesting and remarkable fact that every Nobel-prize winning piece of work in Experimental Physics was carried out on apparatus designed and developed by the physicist in question, be it Rutherford, Raman, Mossbauer or Binnig. I will start by taking the audience through a fascinating journey which saw my team developing Scanning Probe Microscopes, Physical Properties Measurement Systems and hi-end CVDs all the way out to internationally competitive standards. I will then describe how we have gone about enhancing the base so developed for research in material science, condensed matter physics and nano-technology, with packages for scientific computation, many designed and developed (like our instruments) essentially from scratch. By the end of the talk, I hope to have convinced the audience that the complete & seamless, indigenous integration of theory, computation, experiment and instrumentation, which we are beginning to achieve at QuazarTech holds out the promise (not only for us but for centers all over India) of tackling some really interesting physics problems, a few of which I will describe.

The Speaker

Dr. Sahdev trained, as a particle theorist, in leading groups at Cornell University, Univ. of Pennsylvania, and the International Center for Theoretical Physics (Italy). While at these centers, he worked and interacted with several nobel laureates including Prof. Salam, Ken Wilson, Steven Weinberg and Richard Feynman. He then joined IIT Kanpur, where over two decades of innovative teaching, he turned out some of the best physicists of the country. Many of his students have, by now, received the Bhatnagar, Infosys and other prizes.

Prof. Sahdev has contributed to several branches of physics: He was a co-discoverer of radiation zeroes and of their use in determining the anomalous magnetic moment of the W-boson. He is one of the original pioneers of the field of higher-dimensional cosmologies. He has worked on the non-linear dynamics of Josephson-Junction arrays and has developed several algorithms for simulating them.

More recently, he has made considerable progress in achieving the integration of theory, computation, experiment and instrumentation at QuazarTech -- a Research Lab, Educational Center and Company, all merged into a single entity -- which he set up. In particular, he and his group have developed several Scanning Probe Microscopes, Physical Properties Measurement and Data-acquisition Systems, and used them not only for their own research and teaching, but also to facilitate teaching and research across the entire country. Prof Sahdev is currently a Member of the Expert Advisory Group of the Instrumentation/Device Development Program of the Department of Science and Technology.

Tea at 15:30 hrs.
ALL ARE WELCOME