



Physical Research Laboratory, Ahmedabad

Colloquium 15-05

- Speaker:** Prof. B Ananthanarayan
Chairman, Centre for High Energy Physics, Indian Institute of Science, Bengaluru.
- Title:** "Physics of light flavoured quarks"
- Time:** Wednesday, 25 February 2015, 16.00 hrs.
- Venue:** K. R. Ramanathan Auditorium, PRL

Abstract

Familiar objects like protons and neutrons are composite objects made up of light quarks and gluons. These objects are confined inside protons and neutrons and due to the nature of the strong interactions that bind them, extracting their properties is a huge challenge, but crucial for our understanding of nature. In this talk, which would be accessible to any physicist, we will describe the state of the art in the physics of light quarks, beginning with a discussion on the extraction of the coupling constant of the strong interactions. Some recent experiments that probe the lifetime of crucial particles such as the neutral pion, and a description of the upcoming experiments to measure the anomalous magnetic moment of the muon will also be covered. Some technical details will be mentioned for sake of completeness, but in as accessible a manner as possible.

The Speaker

Prof. B Ananthanarayan received his engineering degree in Chemical Engineering from IIT Madras and Ph. D. from the University of Delaware, USA (1991). This was followed by post-doctoral work at PRL, Ahmedabad, and Universities of Lausanne and Bern, Switzerland. Following this he joined IISc and has been a Full Professor there since 2009. A paper authored as a post-doctoral fellow at PRL is now a top-cite 100 paper as per the INSPIRE database. Prof. Ananthanarayan's work has made notable contributions to phenomenology of supersymmetric grand unified models, and in particular to the study of the properties of the top-quark and Higgs boson in these models. He is best known for a spectacular prediction for the top-quark mass well before its discovery. Prof. Ananthanarayan has also carried out pioneering work on the determination of the strong coupling constant using novel renormalization group methods as well as applications of conformal mapping techniques, which helps narrow down one of the fundamental parameters of the standard model. He has published over 75 papers in peer reviewed international journals. Prof. Ananthanarayan is a widely respected member of the national and international community in these fields. He has been a frequent visitor to laboratories in France, Switzerland and the Thomas Jefferson National Accelerator Facility, Virginia, USA. He was conferred a fellowship by the Homi Bhabha Fellowships council which he held between 2009-2011. On March 28, 2015 he will be officially conferred the Rustom Choksi award for excellence in research in science by IISc. Prof. Ananthanarayan is a dedicated teacher and is also interested in popularization of science. He has mentored students at all levels and has participated in numerous outreach activities of the Institute. He has served on statutory bodies of NEHU, Shillong for several years. Prof. Ananthanarayan serves on the editorial board of Current Science, and European Physical Journal A.

Tea at 15:30 hrs.

ALL ARE WELCOME

