Physical Research Laboratory, Ahmedabad

Colloquium 16-05

Speaker: **Prof. K. Sridhar**
Professor, Theoretical Physics, TIFR, Mumbai

Title: **"Gauge Symmetries: Hiding & Seeking"**

Time: **Wednesday, 16 March, 2016 16.00 hrs.**

Venue: **K. R. Ramanathan Auditorium, PRL**

Abstract

I will present a non-technical and somewhat idiosyncratic account of the major milestones in the development of gauge theories in high-energy physics and their establishment as empirically verified theoretical descriptions of the sub-atomic world. I will describe gauge theories in the more apparent manifestations as they occur in Quantum Electrodynamics and Quantum Chromodynamics. I will then go on discuss spontaneously broken gauge theories -- which are situations where the gauge symmetry is hidden -- relevant for electroweak theories. I will discuss in some historical detail the path leading to the prediction of the existence of the Higgs boson and finally discuss the searches for the Higgs boson at colliders and its final discovery at the Large Hadron Collider in CERN.

The Speaker

Prof. K. Sridhar received his doctorate in Physics from the University of Mumbai. He did post-doctoral tenures at the University of London, PRL, Ahmedabad and CERN, Geneva before joining TIFR in 1995. He went back to CERN for a sabbatical year as a CERN Associate in 2001-02 and also held an appointment as a Visiting Professor in his second sabbatical stint at LAPP, Annecy. He has also had visiting professorships from DAMTP, Cambridge, IPPP, Durham and University of Southampton. His research is in the area of Theoretical High Energy Physics, primarily in QCD, electroweak physics, supersymmetry and extra dimensions. He has published close to a 100 research papers and has presented several talks and lectures, both at technical and popular levels. He has completed work on a book entitled "Particle Physics of Brane Worlds and Extra Dimensions" for Cambridge University Press to appear in a couple of months in the prestigious series: Cambridge Monographs in Mathematical Physics. He has taught several courses on the philosophy of science and has co-edited a volume on Integrated Science Education, to appear soon. He has recently been awarded a distinguished Visiting Professorship to the University of Lyon, France.

Other than physics, Sridhar's interests span philosophy, literature, art and culture. He has written several essays on philosophy and on art and has published a work of literary fiction called *Twice Written* which received much critical acclaim. He has begun work on his second book of fiction titled *Ajita.*

Tea at 15:30 hrs.

ALL ARE WELCOME