



Physical Research Laboratory, Ahmedabad

Special Colloquium 18-12

Speaker: Prof. Rajesh Gopakumar
Director, ICTS-TIFR, Bengaluru

Title: "Down-To-Earth String Theory"

Time: Monday, 19 November 2018, 16.00 hrs.

Venue: K.R. Ramanathan Auditorium, PRL

Abstract

"String theory has evolved into a powerful framework which is capable of providing fresh insights into well-established frameworks like quantum field theory (QFT). One such set of new perspectives have been on conformal field theories (CFTs) which are central to our understanding of QFTs. This talk will be centered on some very "down-to-earth CFTs" such as the Wilson-Fisher fixed point (and its analogues and generalizations) that governs critical phenomena in statistical mechanics. We will aim to bring out the utility as well as beauty of the new angles that string theory methods bring to these well studied systems".

The Speaker

Prof. Rajesh Gopakumar obtained his undergraduate degree in Physics from IIT-Kanpur and his Ph.D. degree from Princeton University. Following this he was a Research Associate at Harvard University before moving to the Harish-Chandra Research Institute, India in 2001. He was also a visiting long-term member at the Institute for Advanced Study, Princeton from 2001-2004. He is the recipient of the ICTP Prize, 2006 – established in honour of G. C. Wick, the S. S. Bhatnagar Award (2009), the Swarnajayanti Fellowship (2006), the J. C. Bose Fellowship (2015), the G. D. Birla Prize (2013) and the TWAS Prize in the Physical Sciences (2013). He is also an elected Fellow of all the three science academics in India. He was elected fellow of the Third World Academy of Sciences (TWAS) in 2015. He is a founding member (now alumnus) of the Global Young Academy (GYA).

Prof. Rajesh Gopakumar's research interests are in theoretical physics, primarily at the intersection of quantum field theory and string theory. He would like to understand why string theory is a natural framework for describing a variety of phenomena. In particular, a lot of his research has focused on deciphering the AdS/CFT correspondence. This has included uncovering a new example of this correspondence (minimal model holography) and using it to understand the unbroken symmetries of string theory. His work on topological string theory and the duality with Chern-Simons theory stems from the same motivation. Other works on topological string theory have had applications to enumerative invariants. He has also worked on non-commutative field theories, non-relativistic conformal algebras like the GCA and other topics in string theory. A recurring, unifying theme has also been understanding the large N limit of gauge theories which began with his thesis work on the master field.

Tea at 15:30 hrs.
ALL ARE WELCOME

