



KAAPI WITH KURIOSITY

Why Strings?

String theory is the leading theoretical framework for describing a quantum theory of the gravitational force. In this talk, I will try to motivate, from a somewhat different perspective, why string theory is a natural framework to describe nature. This goes back to the works of Maxwell and Faraday on understanding the electromagnetic force. I will describe the evolution of their ideas in the physics of the 20th century, especially in the context of the strong interaction that holds the nucleus of the atom together. 21st century string theory has uncovered a remarkable connection between this line of thought and the parallel paradigm that emerged in the 1960's to 1980's for describing quantum gravity in terms of strings. I will try to give a flavour of this connection which is currently one of the most active areas of work in theoretical physics.



Rajesh Gopakumar

Rajesh Gopakumar is a theoretical physicist whose research is at the intersection of quantum field theory and string theory. He is the director of the International Centre for Theoretical Sciences (ICTS-TIFR) in Bangalore. Earlier, he was a professor at the Harish-Chandra Research Institute in Allahabad. Alongside Cumrun Vafa, he discovered the Gopakumar–Vafa duality and Gopakumar–Vafa invariants through his work on a simpler form of string theory. He has earned several major awards, such as the ICTP Prize in 2006, the Shanti Swarup Bhatnagar Award in 2009, TWAS Prize in the Physical Sciences 2013, APS Outstanding referee award 2023 and the ICBS Frontiers of Science Award in 2023. He is a Fellow of the Indian Academy of Sciences, the Indian National Science Academy, and the National Academy of Sciences, India. In 2015, he became a fellow of The World Academy of Sciences and is also a founding member and former member of the Global Young Academy.

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