



Department of
Theoretical Physics

Tata-Infosys Lecture Series

Classification of 6d SCFTs and supersymmetric little string theories

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11.30 am**

Venue: A-304, TIFR



It is believed that the only interacting supersymmetric UV complete theories in six dimensions are either SCFTs or supersymmetric little string theories. I will discuss some approaches to classify such theories. In one approach, one attempts to formulate and solve consistency conditions on the low-energy effective gauge theories arising on the tensor branch of vacua of these theories. Another approach is based on studying compactifications of F-theory which admit decoupling limits producing these 6d theories. Such compactifications have been classified under the assumption that the base of the compactification manifold does not carry $O7+$ planes. I will discuss this classification and preliminary attempts at incorporating $O7+$ planes in the description. I will argue that a proper incorporation of $O7+$ planes requires a better understanding of the duality of F-theory with M-theory and superstring theories on the side of physics, and tools for dealing with singular elliptic fibrations on the side of mathematics.