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Supersymmetric Flux Compactifications and Calabi-Yau Modularity

Friday, 4 June 2021 09:00 (1h 15m)

Many familiar constructions in string theory are rooted in the complex geometry of the compact dimensions. On the other hand, many recent advances in mathematics come from arithmetic geometry, where we consider the properties of varieties over smaller fields such as Q. In this talk, following recent work (arXiv:2001.06022, arXiv:2010.07285) with S. Kachru and W. Yang, I will explain how string theory can be related to arithmetic. In particular, I will argue that supersymmetric flux vacua admit arithmetic structures closely related to those of elliptic curves, and moreover that these arithmetic structures are related to the geometry of the F-theory description of the flux compactification.

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