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Status of string theory

Wednesday 27 August 2025 09:00 (30 minutes)

In the past decades, String Theory has emerged as the prime candidate for the unification of particle physics with quantum gravity. It has shed light on important fundamental questions of theoretical physics, such as the microscopic structure of black holes and the geometric origin of particle physics. We focus on the important geometric role that branes, extended objects in String Theory play in deriving the Standard Model of particle physics. We further highlight developments in deriving particle physics from F-theory, a geometric domain of String Theory at finite string coupling, and systematic exploration of the landscape of the (quadrillion) Standard Models with three families of quarks and leptons. Time permitting, we also point out recent insights into geometric origin of higher symmetry structures for quantum field theories derived from String Theory.

Presenter: CVETIC, Mirjam (University of Pennsylvania)

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