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Quantum gravity and the Standard Model

Wednesday 25 September 2019 14:00 (25 minutes)

Much progress has been made in recent years towards a field-theoretic understanding of quantum gravity within the asymptotic safety conjecture. In this talk, I report progress towards the inclusion of Standard Model matter. We perform an extensive fixed point search in theories involving Ricci scalar and tensor, and Riemann tensor invariants alongside SM matter, up to high polynomial orders in curvature. In this large space of curvature invariants, we identify stable UV fixed points and UV-IR connecting trajectories. We emphasize the role of Ricci and Riemann tensor interactions, the impact of SM matter fields, and highlight differences with fixed points in purely gravitational settings. Implications for quantum gravity model building are discussed.

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