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Invariant Renormalization-Group improvement in General Relativity

Monday, 25 July 2022 15:20 (25 minutes)

Renormalization-Group (RG) improvement has been applied to capture the effect of gravitational quantum corrections on cosmological and black-hole spacetimes. In this talk, I will use an algebraically complete set of curvature invariants to establish that (i) RG improvement at the level of the metric (or the equations of motion) is coordinate-dependent, while (ii) RG improvement at the level of curvature invariants (or the action) is coordinate-independent. Spherically-symmetric and axially-symmetric black-hole spacetimes serve as concrete and physically relevant examples.

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