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From the Affine Ising model to Quantum Geometry in curved space

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A general geometrical framework is explored for quantum field theory on curved manifolds motivated by the recent map of the 2d Ising model on a triangulated grid to reproduce the integrable conformal field theory (CFT) on the modular torus (\mathbb{T}^2) and the Riemann sphere (\mathbb{S}^2). This talk will emphasize the special role of affine transformations as a bridge between Regge's simplicial Einstein gravity and simplicial lattice field theory at or near to an infrared critical point. To test and refine this geometrical framework a gradual sequence of lattice fields theories is being considered, including fermionic and gauge fields on cylindrical ($\mathbb{R} \times \mathbb{S}^{d-1}$) manifolds.

Topical area

Theoretical Developments

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