

Quantum space-time, relative locality and entanglement

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Several partial results that have been reported in the quantum-gravity literature over the last decade have been recently interpreted by Freidel, Kowalski, Smolin and myself in terms of properties of the geometry of momentum space. This establishes several valuable connections between otherwise only vaguely related notions, such as the ones of Planck-scale modifications of the on-shell relation, Planck-scale modifications of the laws of conservation of momentum, and Planck-scale relativity of spacetime locality. Some aspects of “quantum-gravity phenomenology” may now be viewed as attempts to establish experimentally the geometry of momentum space, and this new geometric perspective is proving to be rather powerful for seeking new phenomenological avenues, including some preliminary indications relevant for entangled states

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