Effective quantum spacetime from Hopfian relativity

Cohomological assessment of the concept of inertial transformations motivates a purely algebraic understanding of spacetime in the presence of maximal symmetry. In this spirit, Hopf algebras (or quantum groups) provide a rich extension of the common, geometric notions of invariance. A prominent example from quantum gravity phenomenology, the Kappa-Poincaré algebra, and its associated non-commutative model of spacetime will be presented in detail, hinting at a more general discussion around relativistic position operators. Reference is going to be made also to the idea of localizing the introduced structures, hinting towards an incorporation in a dynamical spacetime.