



High Energy Physics - Theory

Super tensor models, super fuzzy spaces and super n-ary transformations

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By extending the algebraic description of the bosonic rank-three tensor models, a general framework for super rank-three tensor models and correspondence to super fuzzy spaces is proposed. The corresponding super fuzzy spaces must satisfy a certain cyclicity condition on the algebras of functions on them. Due to the cyclicity condition, the symmetry of the super rank-three tensor models are represented by super n-ary transformations. The Leibnitz rules and the fundamental identities for the super n-ary transformations are discussed from the perspective of the symmetry of the algebra of a fuzzy space. It is shown that the super n-ary transformations of finite orders which conserve the algebra of a fuzzy space form a finite closed n-ary super Lie algebra. Super rank-three tensor models would be of physical interest as background independent models for dynamical generation of supersymmetric fuzzy spaces, in which quantum corrections are under control.

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