Quantizable Models for M-theory

The hidden exceptional symmetries of eleven-dimensional supergravity that emerge upon compactification on tori are believed to provide important hints to the formulation of M-theory as it results from the quantization of some yet unknown fundamental objects generalizing strings. In 1985, former Aggie Michael Duff conjectured that this theory should have the full exceptional symmetry present as a spacetime symmetry already in eleven dimensions. In this talk I will present models with the property that their canonical quantization gives rise to current algebras on extended objects with these exceptional global symmetries. (These are known for ranks up to and including seven.) In particular, truncation of the bracket of two vector field currents to the massless level reproduces the “exceptional Courant bracket” of the exceptional/generalized geometry. Such geometries come with a “section condition” on their momenta which arises in these models from a Virasoro constraint.