

## New Dualities in Three-dimensional Scattering

*Thursday, 27 September 2012 15:00 (20 minutes)*

In recent years a host of new structures, such as Yangian symmetries and the duality between color and kinematics, have been discovered in the study of maximally supersymmetric scattering amplitudes. It is natural to question whether these structures can be found in a wider class of theories. In this talk we provide evidence for analogous structures in three-dimensional supersymmetric Chern-Simons matter theories.

Specifically we show that the tree-level amplitudes can be written so that the kinematic factors satisfy the fundamental identity of three-algebras. We further show that the amplitudes can be squared into the amplitudes of three-dimensional supergravity, thus providing evidence for a hidden three-algebra structure in the dynamics of the supergravity. We also study the Chern-Simons planar amplitudes at one-loop, demonstrating that their explicit form is consistent with, and determined by, their Yangian symmetry.

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