



Department of
Theoretical Physics

THE QUANTUM SPACETIME SEMINAR SERIES

Lattice Formulation of $N=2^*$ Super Yang-Mills

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Date: Nov. 20, 2017

Time: 11.30 am

Venue: A-304, TIFR



Four-dimensional $N=2^*$ super Yang-Mills theory is obtained by introducing a one parameter mass deformation to one of the hypermultiplets of four-dimensional $N=4$ Yang-Mills. Four-dimensional $N=2^*$ Yang-Mills is a non-conformal gauge theory and its gravitational dual has been constructed by Pilch and Warner. The theory exhibits many interesting properties at finite temperature. We formulate $N=2^*$ super Yang-Mills on a Euclidean spacetime lattice using the method of topological twisting. The lattice formulation is local, gauge invariant, doubler free and preserves one supersymmetry charge at finite lattice spacing. Such a construction can be used for finite temperature nonperturbative explorations of the theory and validate the gauge-gravity duality conjecture in a non-conformal theory.

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