

Lattice 2024



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## Maximally supersymmetric Yang–Mills in three dimensions

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Recent years have seen significant progress in numerical lattice studies of supersymmetric gauge theories, exploiting formulations that exactly preserve a supersymmetry sub-algebra at non-zero lattice spacing. These investigations remain computationally demanding, especially in the large- $N$  limit of the  $SU(N)$  gauge group. Three-dimensional theories offer a promising balance between computational costs and rich non-perturbative dynamics, including connections to quantum gravity via holographic dualities. I will present new lattice investigations of maximally supersymmetric Yang–Mills theory in three dimensions, focusing on its non-perturbative phase diagram.

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