



Contribution ID: 473

Type: Poster

A1: Investigations of supersymmetric Yang–Mills theories

Wednesday, 28 July 2021 08:00 (15 minutes)

I will present new results from investigations of lattice supersymmetric Yang–Mills theories in three and four dimensions. The fermion action of these theories involves a Pfaffian that may be complex. A first analysis of the complex phase of the Pfaffian, $\langle e^{i\phi} \rangle$, for the 3D theory with maximal supersymmetry (16 supercharges) reveals very small fluctuations around real positive values. This justifies the phase-quenched approximation used in recent work (arXiv:2010.00026). Separately, computing Creutz ratios for both the 3D and 4D theories with 16 supercharges provides information about their running coupling and beta function. Space permitting, I will also present ongoing work on the 3D theory with 8 supercharges.

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Session Classification: Poster

Track Classification: Particle physics beyond the Standard Model