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Thermal phase structure of dimensionally reduced super-Yang–Mills

Thursday, 29 July 2021 13:15 (15 minutes)

I will present lattice investigations into the thermal phase structure of the Berenstein–Maldacena–Nastase deformation of maximally supersymmetric Yang–Mills quantum mechanics. The phase diagram of the theory depends on both the temperature T and the deformation parameter μ, through the dimensionless ratios T/μ and $g = \lambda/\mu^3$ with λ the 't Hooft coupling. We determine the deconfinement T/μ for couplings g that span three orders of magnitude, to interpolate between the weak-coupling perturbative prediction and large-N dual supergravity calculations in the strong-coupling limit. Analyzing multiple lattice sizes up to $N_\tau = 24$ and numbers of colors up to $N = 16$ allows initial checks of the large-N continuum limit.

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