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Spinning the fuzzy sphere

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We construct various exact analytical solutions of the $SO(3)$ BMN matrix model that correspond to rotating fuzzy spheres and rotating fuzzy tori. After an appropriate ansatz, we reduce the problem to solving a set of polynomial equations in $2N$ real variables. These equations have a discrete set of solutions for each value of the angular momentum. We study the phase structure of the solutions for various values of N , as well as the large N limit. In this limit the problem reduces to finding periodic solutions of a set of coupled non-linear differential equations with a fixed period. We also study the topology change transition from the sphere to the torus.

Oral or Poster Presentation

Oral

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