



Contribution ID: 187

Type: **Talk**

Lattice techniques to investigate the strong CP problem: lessons from a toy model

Thursday 1 August 2024 10:20 (20 minutes)

Recent studies have claimed that the strong CP problem does not occur in QCD, proposing a new order of limits in volume and topological sectors when studying observables on the lattice. In this talk I will study the effect of the topological θ -term on a simple quantum mechanical rotor that allows a lattice description. I will particularly focus on recent proposals to face the challenging problems that this study poses in lattice QCD and that are also present in the quantum rotor, such as topology freezing and the sign problem.

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Session Classification: Tests of fundamental symmetries

Track Classification: Tests of Fundamental Symmetries