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Phase Structure Study of SU(2) Lattice Gauge Theory with 8 flavours

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We present the phase structure for SU(2) lattice gauge theory with 8 flavours of staggered fermions in the fundamental representation. One bulk phase transition is observed through the measurement of the plaquette, smeared Polyakov loops, as well as the Dirac operator eigenvalue spectrum. To further identify the order of the bulk phase transition pertaining to confinement and deconfinement, we resort to cold-start and hot-start simulations and the study of the constraint effective potential relating to distributions for smeared Polyakov loops.

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