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Exploring confinement in SU(N) gauge theories with double-trace Polyakov loop deformations

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Recent results applying resurgence theory to finite-temperature field theories yield a detailed analytic structure determined by topological excitations. We examine finite-temperature SU(N) lattice gauge theories in light of these results. Double-trace Polyakov loop deformations move through different regions of the confined phase characterized by continuous change in the adjoint Polyakov loop. Lattice models show how the behavior of monopole constituents of calorons can change in the different confining regions. We conjecture that the pure SU(N) gauge theory is close to a special symmetric point where monopole effects give rise to Casimir string-tension scaling.

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