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Nonperturbative anisotropy calibration in lattice QCD at strong coupling

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We propose a simple criterion for the nonperturbative renormalization of the anisotropy coupling in lattice QCD with massless staggered fermions, in the strong coupling limit. We compute numerically and to high precision the renormalised anisotropy, and the analogue of Karsch's coefficients, using diagrammatic Monte Carlo algorithms and multi-histogram reweighting. We observe a large nonperturbative correction to the mean field anisotropy, and we analyse the implications of such a correction on the continuous time limits of the phase diagram of lattice QCD at strong coupling, and of the baryon mass.

Title

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