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Logarithmic Corrections to a^2 scaling in lattice Yang Mills theory

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We analyse the leading logarithmic corrections to the a^2 scaling of lattice artefacts in QCD, following the seminal work of Balog, Niedermayer and Weisz in the O(n) non-linear sigma model. Limiting to contributions from the action, the leading logarithmic corrections can be determined by the anomalous dimensions of a minimal on-shell basis of mass-dimension 6 operators. We present results for the lattice SU(N) pure gauge theory. In this theory the logarithmic corrections reduce the cutoff effects. These computations are the first step towards a study of full lattice QCD at O(a^2), which is in progress.

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