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Test of a two-level algorithm for the glueball spectrum in $SU(N_c)$ Yang-Mills theory.

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We present preliminary results obtained using a new code for $SU(N_c)$ Yang-Mills theory which performs a 2-level sampling of glueball correlators obtained from a suitably chosen basis of (APE) smeared and un-smeared operators. The code builds loop operators of any shape and length and classifies them according to the irreducible representations of the cubic group. We report on the performances of the algorithm and on the computation of the first low-lying glueball states choosing $N_c = 3$ as a reference to compare our results with the literature.

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