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Computing the static potential using non-string-like trial states

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We present a method for computing the static quark-antiquark potential, which is not based on Wilson loops, but where the trial states are formed by eigenvector components of the covariant Laplace operator. We have tested this method in SU(2) Yang-Mills theory and obtained results with statistical errors of similar magnitude compared to a standard Wilson loop computation. The runtime of the method is, however, significantly smaller, when computing the static potential not only for on-axis, but also for many off-axis quark-antiquark separations, i.e. when a fine spatial resolution is required.

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