't Hooft loops and perturbation theory

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Abstract: We show that high-temperature perturbation theory describes extremely well the area law of $SU(N)$ spatial 't Hooft loops, or equivalently the tension of the interface between different Z_N vacua. For $SU(2)$, the disagreement between Monte Carlo data and lattice perturbation theory for $\tilde{\sigma}(T)/T^2$ is less than 2%, down to temperatures $\mathcal{O}(10)$ T_c. For $SU(N), N > 3$, the data for the ratio of interface tensions, $(\tilde{\sigma}_k/\tilde{\sigma}_1)(T)$, agree with perturbation theory, which predicts tiny deviations from the ratio of Casimirs, down to nearly T_c. In both cases, the precision Monte Carlo measurements are made possible by a simple but powerful modification of the 'snake' algorithm.