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Study of compact U(1) flux tubes in lattice gauge theory using GPU's

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We utilize Polyakov loop correlations to study 4D compact U(1) flux tubes and the static electron-positron potential in lattice gauge theory. By using field operators it is possible in U(1) lattice gauge theory to probe directly the electric and magnetic fields.

In order to improve the signal-to-noise ratio in the confinement phase, we apply the Lüscher-Weiss multilevel algorithm.

Our code is written in CUDA, and we run it in NVIDIA FERMI generation GPU's, in order to achieve the necessary performance for our computations.

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