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A worm-inspired algorithm for the simulation of Abelian gauge theories

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We present an algorithm in which the all-order strong coupling expansion of the Abelian $U(1)$ gauge theory with Wilson plaquette action is sampled. In addition to the vacuum closed surface graphs of the partition function we propose to also allow for a class of defects (boundaries) related to Wilson loops in the ensemble. The efficiency of our scheme in estimating various observables is compared to a standard Metropolis algorithm.

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talk

Primary authors: KORZEC, Tomasz (HU Berlin); Prof. WOLFF, Ulli (HU Berlin)

Presenter: KORZEC, Tomasz (HU Berlin)

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