A new efficient cluster algorithm for the Ising model

Presenter: Matthias Nyfeler

U.-J. Wiese, M. Pepe, M. Nyfeler

Abstract: Using D-theory we construct a new highly efficient cluster algorithm for the Ising model. The construction is very different from the standard Swendsen-Wang algorithm and related to worm algorithms. With the new algorithm we have measured the correlation function with high precision over a surprisingly large number of orders of magnitude. The D-theory framework opens the door to the construction of efficient algorithms for nonperturbative field theories.