

Probabilistic sampling for physics: finding needles in a field of high-dimensional haystacks

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Type: **Non spécifié**

Population Monte Carlo as a meta-algorithm

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As a meta-algorithm, population annealing can be combined with a wide range of simulation methods, including Monte Carlo and molecular dynamics. In the past, we have analyzed the approach regarding the scaling of statistical and systematic errors, proposed improvements and implemented the method on highly-efficient graphics processing units. In the present talk I will discuss recent developments regarding the optimal choice of the resampling protocol, the combination of several population annealing simulations using weighted averages, applications relating to quantum Monte Carlo simulations, and the combination of population annealing with generalized ensembles such as for microcanonical and multicanonical simulations.

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Classification de Session: Challenge and Perspective