



Contribution ID: 210

Type: **Talk**

Testing two-level sampling for fermionic observables

Monday 3 November 2025 14:30 (20 minutes)

We present recent progress in combining a two-level sampling algorithm with distillation techniques to compute fermionic observables. The method relies on expressing the quark propagator as a series of domain-local contributions, each depending only on the gauge links in a restricted region, which can then be estimated independently with a two-level sampling strategy. This enables an exponential gain in the signal-to-noise of fermionic correlators as the number of submeasurements increases. We test the method on pure gauge ensembles and we compute both the first two terms in the series with a two-level sampling. We will show results for different iso-singlet observables and outline prospects for applying the two-level algorithm to dynamical QCD simulations.

Parallel Session (for talks only)

Algorithms and artificial intelligence

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Session Classification: Algorithms and artificial intelligence