



Contribution ID: 167

Type: **Oral presentation**

Machine Learning for Thermodynamic Observables

Thursday 29 July 2021 06:00 (15 minutes)

In this talk, I will discuss how thermodynamic observables of lattice field theories can be estimated using machine learning. Specifically deep generative models are used to estimate the absolute value of the free energy. This is in contrast to MCMC-based methods which are limited to estimating differences of free energies. These methods come with the same asymptotic guarantees as the standard MCMC-based approaches. Application of these methods to two-dimensional ϕ^4 theory will be presented and compared to existing approaches.

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Session Classification: Algorithms (including Machine Learning, Quantum Computing, Tensor Networks)

Track Classification: Algorithms (including Machine Learning, Quantum Computing, Tensor Networks)