



Contribution ID: 316

Type: **Oral presentation**

## Bayesian Model Averaging for Lattice Field Theory

*Tuesday, 27 July 2021 14:00 (15 minutes)*

Statistical modeling plays a key role in lattice field theory calculations. Examples including extracting masses from correlation functions or taking the chiral-continuum limit of a matrix element. We discuss the method of model averaging, a way to account for uncertainty due to model variations, from the perspective of Bayesian statistics. Statistical formulas are derived for model-averaged expectation values and for estimating the required model probability weights. In addition, we reframe the common problem of data subset selection (e.g. choice of minimum time separation for fitting a two-point correlation function) as a model selection problem and study model averaging as a universal alternative to hand tuning of fit ranges.

**Primary authors:** Prof. NEIL, Ethan (University of Colorado Boulder); Dr JAY, William (Fermi National Accelerator Laboratory)

**Presenter:** Prof. NEIL, Ethan (University of Colorado Boulder)

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

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