

Abstract Submitted  
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**Fitting Nuclear Potentials with TensorFlow & Gaussian Processes** JORDAN MELENDEZ, Ohio State University — A nuclear potential with quantified uncertainties is crucial for meaningful predictions across the nuclear chart. I will discuss how statistics and algorithms can help us find better potentials more easily. A Bayesian model discrepancy term is shown to both incorporate uncertainty from higher order terms in chiral effective field theory and also regularize the fitting procedure. Information about model correlations can be rigorously incorporated for the first time using Gaussian processes. Combined with TensorFlow, new codes can more effectively sample the posteriors of low-energy constants for full uncertainty quantification. Potential applications are discussed.

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