Abstract Submitted
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Applying Bayesian Truncation Error Models to Chiral Effective Field Theory[1] R.J. FURNSTAHL, J.A. MELENDEZ, Ohio State U., D. PHILLIPS, Ohio U., M.T. PRATOLA, Ohio State U., S. WESOLOWSKI, Salisbury U. — Chiral effective field theory (EFT) predictions are necessarily truncated at some order in the EFT expansion, which induces an error that must be quantified for robust statistical comparisons to experiment. We apply a Bayesian truncation error model to various chiral EFTs, including the new Entem-Machleidt-Nosyk and Reinert-Krebs-Epelbaum potentials, to analyze their construction and fits. Our results show good agreement for some potentials but untamed convergence patterns for others, which may point to problems in fitting or the power-counting model (e.g., from regulator artifacts). This shows that our statistical model can be used as a diagnostic tool for chiral EFT fitting issues that may be obscured otherwise. We also discuss extending the statistical model to other EFTs, including pionless EFT.

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