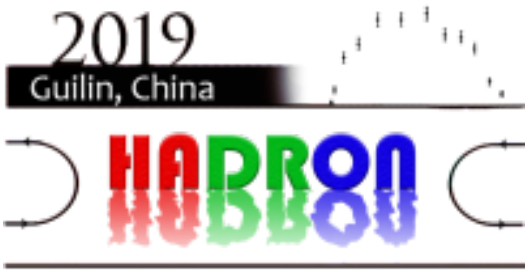

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Uncertainty Quantification of Hypertriton Binding Energy

Wednesday, 21 August 2019 11:30 (20 minutes)

We perform the Hypernuclear No-Core Shell Model (NCSM) calculations to study the uncertainty of hypertriton binding energy. In particular, we employ a family of nucleon-nucleon (NN) nuclear interactions at next-to-next-to-leading-order (NNLO) in chiral effective field theory to approximate the uncertainty of the nuclear interaction in combination with a fixed leading-order (LO) chiral hyperon-nucleon (YN). The three-body calculations are performed in the relative Jacobi coordinates Harmonic-Oscillator (HO) basis in model spaces up to Nmax=70 MeV to obtain the well-converged energy. As a result, we provide a prediction for the model uncertainties of the hypertriton system by propagating the quantified uncertainties of the nuclear interaction. Based on our finding of small sensitivity of hypertriton binding energy to the uncertainty of NN interaction, we claim that this bound-state observable can be used in a fitting procedure to constrain the YN interaction.

Primary author: Ms HTUN, Thiri Yadanar (School of Physics, Suranaree University of Technology, Thailand)

Co-authors: Prof. FORSSÉN, Christian (Department of Physics, Chalmers University of Technology, Sweden); Dr GAZDA, Daniel (Chalmers University of Technology and Physics Institute, Czech Republic); Prof. YAN, Yupeng (School of Physics, Suranaree University of Technology, Thailand)

Presenter: Ms HTUN, Thiri Yadanar (School of Physics, Suranaree University of Technology, Thailand)

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