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Structure of light hypernuclei from chiral two- and three baryon forces

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Content

Hypernuclei offer valuable insights for constraining hyperon-nucleon (YN), hyperon-hyperon (YY) and three-baryon (YNN) interactions. After a brief introduction to chiral interactions, I present our determination of the charge-symmetry breaking (CSB) effects in YN interactions based on $A = 4$ hypernuclei, which can then be further examined using isospin multiplets of p-shell hypernuclei [1,2]. I also summarize our recent findings based on chiral YN [3,4], YY[5] as well as YNN interactions [6] applied to light hypernuclei up to $A = 7$ and discuss how several orders of the chiral interactions can be used to get a robust estimate of theoretical uncertainties [7]. Finally, I conclude with a discussion of the properties of $S = -2$ hypernuclei [8,9] based on chiral interactions.

Reference

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Field of Research: Production, structure and decay of hypernuclei / Multi-strange systems

Experiment / Theory: Theory

Contribution Type: Invited talk