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# Strangeness in Neutron Stars - Constraining the hyperon Nucleon Interaction

*Thursday, 20 April 2023 11:00 (30 minutes)*

A comprehensive picture of the strong interaction can be obtained by extending our currently well understood nucleon-nucleon (NN) interaction to interactions involving strangeness degrees of freedom. The short lifetime of hyperons, however, prevents high-precision scattering experiments using typical procedures, and our efforts have been focused on complementary approaches utilising hypernuclear studies and final state interactions. The latter approach has only recently become feasible due to recent advancements in accelerator and detector technologies, which allow us to study exclusive reactions in hyperon photoproduction with high rates. Data collected using the CLAS detector housed in Hall-B of the Thomas Jefferson laboratory allow us to obtain a large set of observables, including cross section information [1] on the two-body (YN) and three-body (YNN) interaction and place stringent constraints on the underlying dynamics to address the "Hyperon Puzzle"[2]. In this talk I will provide an overview on the ongoing efforts currently underway that focus on extracting a large set of observables to constrain the interaction between hyperons and nucleons.
[1] J. Rowley, et. al. Phys. Rev. Lett. 127, 272303 (2021)
[2] I. Vidaña, Proc. R. Soc. A.474 01452 (2018)

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