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Hypernuclear physics with pionless effective field theory

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Hypernuclear physics is a highly active field in the few-body sector, with significant astrophysical implications, such as in the description of neutron stars. However, hypernuclear systems are more difficult to be studied experimentally than standard nuclei, resulting in a shortage of data for model development and for the fit of realistic hypernuclear interactions. Past models have struggled to describe all observed hypernuclei, effective field theories have addressed this issue by providing a framework for creating theories with minimal parameters that can consistently describe lambda and double-lambda hypernuclei.

In this seminar, I will provide an overview of recent advancements in effective field theories for Lambda and double-Lambda hypernuclei, with a specific emphasis on the hypernuclear pionless theory. Additionally, I will review the various few-body methods and theoretical tools utilized to define and apply this theory. Lastly, I will outline the future prospects and potential applications of effective field theories in the field of hypernuclear physics.

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