

Exotic light nuclei from *ab initio* theory

Friday, 8 June 2018 09:00 (18 minutes)

One of the recently developed approaches capable of describing both bound and scattering states in light nuclei simultaneously is the No-Core Shell Model with Continuum (NCSMC). I will present recent NCSMC calculations of weakly bound states and resonances of exotic halo nuclei ${}^6\text{He}$ and ${}^{11}\text{Be}$. I will also discuss the ${}^{11}\text{Be}$ mirror ${}^{11}\text{N}$, an unbound ${}^{10}\text{C}+p$ system, and highlight the role of chiral NN and ${}^3\text{N}$ interactions in the description of the ${}^{10}\text{C}(p,p)$ scattering measured recently at TRIUMF. Finally, I will discuss our new calculations of the structure of the unbound ${}^9\text{He}$ nucleus as well as our ongoing calculations of the ${}^{11}\text{C}(p,p)$ scattering and ${}^{11}\text{C}(p,\gamma){}^{12}\text{N}$ capture.

Summary

Primary author: Dr NAVRATIL, Petr (TRIUMF)

Co-authors: Dr HUPIN, Guillaume (IN2P3/CNRS Orsay); Dr VORABBI, Matteo (TRIUMF); Dr QUAGLIONI, Sofia (LLNL)

Presenter: Dr NAVRATIL, Petr (TRIUMF)

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