HAW14-2014-000271

Abstract for an Invited Paper
for the HAW14 Meeting of
the American Physical Society

Ab initio calculations of light-nucleus reactions and three-nucleon forces[1]

SOFIA QUAGLIONI, LLNL

Achieving a first-principles description of the properties of nuclei as they emerge from the underlying fundamental interactions among the constituent protons and neutrons is a central goal of nuclear theory. An important question is to understand the role of three-nucleon forces. In the past, progress in this area has been mainly driven by nuclear structure calculations, but new capabilities are now emerging that allow us to explore three-nucleon force effects in light-nucleus scattering and reactions. In this talk I will present the state of the art of ab initio calculations for nucleon and deuterium scattering on light nuclei starting from chiral two- and three-body Hamiltonians.

[1]Prepared by LLNL under Contract DE-AC52-07NA27344. Support from the U. S.DOE/SC/NP (Work Proposal No. SCW1158) is acknowledged.