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Three-nucleon interaction in light ion reactions[1] GUILLAUME
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more National Laboratory
— The fundamental description of both structural prop-
erties and reactions of light-nuclei based on nucleon-nucleon and three-nucleon forces
derived from first principles is a standing goal in nuclear physics. The *ab initio* no-
core shell model when combined with the resonating-group method (NCSM/RGM)
[1,2] is capable of describing simultaneously both bound and scattering states in light
nuclei, and has already produced promising results starting from a two-body Hamil-
tonian. Using similarity-renormalization-group evolved two- and three-nucleon in-
teractions [2,3], I will present the first applications to light nuclei binary scattering
processes when accounting for the chiral EFT two- plus three-nucleon interaction
versus the chiral EFT two-nucleon interaction.

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[2] P. Navrátil and S. Quaglioni, PRC **83**, 044609 (2011). [3] E. Jurgenson, P.
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mer, A. Calci, S. Binder, and P. Navrátil, PRL **107**, 072501 (2011).

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