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Calculation of the nuclear optical potential and elastic scattering observables for unstable nuclei using a relativistic formalism

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The ground state properties of unstable nuclei are studied using the following relativistic mean field (RMF) models: QHDI, QHDII, NL3, and FSUGold. The bound state wave functions obtained from these RMF calculations are then folded with the nucleon–nucleon (NN) interaction to obtain the nuclear optical potential. Two models for the NN interaction are considered: the IA1 parametrization, and a general Lorentz-invariant form, called the IA2 model. The scattering observables are calculated for projectile proton scattering at various intermediate energies of 200 MeV, 300 MeV, and 500 MeV, by solving the Dirac equation. The results for the IA1 and IA2 models will be compared.

Apply to be considered for a student award (Yes / No)?

Yes

Level for award (Hons, MSc, PhD, N/A)?

PhD

Main supervisor (name and email) and his / her institution

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Would you like to submit a short paper for the Conference Proceedings (Yes / No)?

Yes

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