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## The Description of Exclusive Proton-Proton Knockout Reactions from Unstable Nuclei Within a Relativistic Framework.

In this project we study exclusive proton-proton scattering reactions from unstable nuclei at intermediate energies (100 - 500 MeV) using relativistic formalism. The original relativistic impulse approximation (A1) and generalized relativistic impulse approximation (A2) formalisms are used to calculate the optical potentials, with target densities derived from relativistic mean field theory using QHD I, QHD II, NL3 and FSUGold parameter sets. Furthermore, comparisons between the optical potentials are undertaken using both IA1 and IA2 formalisms, and the different RMF Lagrangians are presented for both stable and unstable targets. The study of the effect of full folding versus factorized form of optical potentials elastic scattering observables (especially spin observables) is undertaken as well. The experimental work to verify the theoretical studies/results is performed at the iThemba laboratory for Accelerator Based Sciences (Faure, South Africa).

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

Yes

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

MSc

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