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(p,t) reactions on Barium isotopes and neutrinoless double beta decay.

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The massive nature of neutrinos opens the possibility that they could be Majorana fermions (the neutrino being the same as its antiparticle). The observation of a neutrinoless double beta ($0\nu\beta\beta$) decay will validate this possibility and its measured decay rate will determine the absolute neutrino mass scale. However, if the latter were observed, there still exists a large uncertainty on the calculated transition matrix elements for double beta decay candidates that will affect the determination of the neutrino mass. Having a better understanding of the structure of these nuclei greatly help constrain these calculations. In this poster we describe the study of (p,t) reactions on ^{136}Ba and ^{138}Ba initiated at the University of the Western Cape in order to obtain useful nuclear structure information for the double beta decay matrix element calculations of ^{136}Xe to ^{136}Ba .

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

Yes

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

MSc

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)?

No

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