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Potential of studying neutrino interactions in the DUNE high-pressure gas time projection chamber via transverse kinematic imbalance FEDERICO BATTISTI, University of Oxford, DUNE COLLABORATION COLLABORATION — The HPgTPC (high-pressure gas time projection chamber) is the central element of ND-GAr, one of the proposed components of the future DUNE near detector, and has been designed to achieve low detection thresholds and high acceptance. The HPgTPC's characteristics make it an optimal detector to study neutrino interactions. In this talk I will discuss how nuclear effects could be studied in the HPgTPC using transverse kinematic imbalance (TKI), a technique which has been extensively studied in the MINERVA and T2K experiments. Furthermore I will investigate the feasibility of using the TKI techniques to detect pure neutrino-hydrogen interactions, considering different options for the TPC gas mixtures.

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