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**Searching for neutron-antineutron oscillation in the Deep Underground Neutrino Experiment** YUYANG ZHOU, GEORGIA KARAGIORGI, Columbia University, JEREMY HEWES, University of Manchester, DUNE COLLABORATION — The imbalance of matter and antimatter in the universe remains one of the most perplexing unsolved problems in physics. In order to explain this phenomenon, grand unified theories (GUT) have proposed the existence of baryon number violating processes. One such process is neutron-antineutron oscillation. The future Deep Underground Neutrino Experiment (DUNE) can search for argon-bound neutron-antineutron oscillation. The signature of this process in the DUNE Far Detector is special in that its final states form a unique, star-shaped event topology. This striking topology and the DUNE detector readout operating principle (that of a liquid argon time projection chamber (LArTPC)) allows the implementation of deep learning image classification techniques to search for these interactions. The detection of this process would not only revolutionize our understanding of the origin of matter in the universe, but also serve as the foundation for new, GUT-scale physics to be discovered. In this presentation, we explore the feasibility of applying this methodology in DUNE and report on the current status of a sensitivity evaluation.

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