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Search for magnetic monopoles with the NOvA far detector

The NOvA far detector, due to its surface proximity, large size, good timing resolution, and large energy dynamic range, is sensitive to the detection of magnetic monopoles over a large range of velocities and masses. Two different algorithms have been developed to trigger the candidate monopole events: one targeting on relativistic and highly ionizing monopoles, the other on non-relativistic monopoles. Both have been tested using a detailed Monte Carlo simulation of the detector and the large cosmic-ray background. In this poster, we present the detector's response to simulated monopoles, the trigger efficiencies of both algorithms, the reconstruction of candidate monopole events of cosmic data from far detector, and our expected sensitivity for the full NOvA far detector exposure.

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