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Nucleon Decay and Neutrino Detectors

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Neutrino measurements with the FASER detector at the LHC

Friday, October 3, 2025 9:00 AM (25 minutes)

The Forward Search Experiment (FASER) is a small experiment in the far-forward region 480 m upstream of the ATLAS interaction point at the LHC. It is designed to detect highly-energetic neutrinos as well as to search for feebly-interacting new particles predicted by extensions of the Standard Model. So far in Run 3 FASER has collected close to 200 fb^{-1} of data and has yielded results from both the emulsion-based technology used in the sub-detector FASER ν and from the electronic components of the detector. These results include the first ever observation of electron and muon neutrinos produced at a particle collider, measurements of their interaction cross sections, and the first differential cross section and flux measurements of muon and anti-muon neutrinos at TeV energies, closing the gap between fixed-target experiments and astrophysical measurements. This talk will present an overview of the experiment, recent neutrino results, and future prospects.

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