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## Measuring high-energy neutrinos with FASERnu at the LHC

FASERnu is a new detector designed to study high-energy neutrinos at the LHC. The detector will be installed 480 m downstream of the ATLAS interaction point. It will enable us to constrain, for the first time, the cross-sections of all three neutrino flavors in the energy range between 350 GeV and 5 TeV. In particular, tau-neutrino and electron-neutrino cross sections will be measured at the highest energy ever.

In 2018 we performed a pilot run with the aims of measuring particle fluxes at the proposed detector location and of detecting neutrino interactions for the first time at the LHC. We installed a 30-kg lead/tungsten emulsion detector and collected data of  $12.2 \text{ fb}^{-1}$ . The analysis of this data has yielded several neutrino interaction candidates.

During Run-3 of the LHC starting from 2022, we will deploy an emulsion-based detector with a target mass of 1.1 tons, coupled with the FASER magnetic spectrometer. This would yield roughly 1,300  $\nu_e$ , 9,000  $\nu_\mu$ , and 30  $\nu_\tau$  interacting in the detector. Here we present the status and plan of FASERnu, as well as the neutrino detection in the 2018 data.

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