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## **Detecting and studying three-flavor neutrinos with FASER at the LHC**

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FASER $\nu$  at the LHC is designed to directly detect collider neutrinos of all three flavors and provide new measurements of their cross-sections at energies higher than those seen from any previous artificial sources. We observed the first neutrino interaction candidates at the LHC in the 2018 pilot run data and then reported the firm observation of neutrino interactions in the 2022 data, opening a new avenue for studying neutrinos from high-energy colliders. In 2022-2025, during LHC Run 3, we expect to collect  $\sim 2,000$   $\nu_e$ ,  $\sim 6,000$   $\nu_\mu$ , and  $\sim 40$   $\nu_\tau$  charged-current interactions in FASER $\nu$ , along with neutral-current interactions. Here we present the latest results from FASER $\nu$ .

### **Submitted on behalf of a Collaboration?**

Yes

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