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Hadron Production Measurements with EMPHATIC

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One of the leading sources of systematic uncertainty in neutrino experiments is the modeling of the neutrino flux. Neutrino flux uncertainties are dominated by hadron scattering and hadron production cross section uncertainties, and new, dedicated measurements are needed. The EMPHATIC collaboration aims to measure the forward-scattering and production of hadrons for a variety of beam momenta and targets relevant for neutrino experiments. In 2022, EMPHATIC collected data ranging from 2 to 120 GeV/c, with aluminium, CH2, graphite, and iron targets. I will provide an overview of the design and operations of the experiment thus far, future upgrades and data-taking plans, and the current status of analysis work.

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