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NA61/SHINE Hadron Production Measurements for Accelerator-Based Neutrino Beams

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Long-baseline neutrino experiments, such as NOvA, T2K, and DUNE, are working to measure neutrino oscillation parameters and will benefit from reduced neutrino flux uncertainties. The dominant source of neutrino flux uncertainty arises from an insufficient knowledge of parent hadron yields from neutrino production targets. Using external hadron production measurements, we can significantly reduce these flux uncertainties. The NA61/SHINE experiment at CERN provides measurements of many hadronic interactions for this purpose. Recent results from NA61, including 120 GeV incident proton measurements relevant to NuMI and DUNE, will be discussed, as well as progress on a measurement of hadron yields from a NuMI replica target.

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