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Interactions with an Electromagnetic Shower in the Final State at the NOvA Near Detector

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The NOvA experiment is a long-baseline neutrino experiment aiming to con- strain independent elements of the PMNS matrix. The NOvA Near Detector can also serve as a way to measure many different types of neutrino-nucleus cross sections, significantly adding to the world neutrino data and helping to improve models of neutrino scattering that are critical to oscillation measure- ments. Electromagnetic showers can be produced in a variety of ways from neutrino scattering, sometimes in the final state lepton in charged current νe scattering, or through the decay of hadrons from charged- or neutral-current interactions, and also through coherent or incoherent scattering. Each of these final state configurations has different sensitivities to initial and final state nu- clear effects as well as interaction processes with nuclear constituents. This talk will discuss the status of a suite of analyses of data from the NOvA Near Detector which all have electromagnetic showers in the final state using both neutrinos and antineutrinos as a probe.

Working group

WG2

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