

MINERvA in 10 minutes

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The MINERvA experiment delves deep into the world of neutrino nucleus interactions to piece together a guidebook of measurements essential to advancing cross section models. The next generation of long baseline neutrino experiments require a significant improvement to our understanding of neutrino nucleus interactions to measure oscillation parameters to the required level of precision. The MINERvA experiment uses an on-axis flux peaking at 6 GeV from the NuMI beamline. It deployed a well understood detector with various target materials (Fe, Pb, CH, H₂O, He) to achieve a better handle on the cross section scaling with target material, A , which is imperative for understanding nuclear effects. High statistics enable the extraction of exclusive cross section measurements of specific neutrino interaction channels, to offer a richer complement to inclusive measurements. Measurements in both neutrino mode as well as anti-neutrino mode pay a nod to the importance of understanding both modes to even begin to understand some of the mysteries of the universe. This talk will describe the ingredients that go into most of MINERvA's analyses: the neutrino beams that have been used, the MINERvA detector, and the strategies we use to keep our detector and flux uncertainties low.

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