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Title:	Measurement of Final-State Correlations in Neutrino Muon-Proton Mesonless Production on Hydrocarbon at $\langle E \rangle = 3$
Authors:	Jena, Satyajit (/jspui/browse?type=author&value=Jena%2C+Satyajit)
Keywords:	Neutrino Muon-Proton Hydrocarbon $\langle E \rangle = 3$ GeV Mesonless Production
Issue Date:	2018
Publisher:	American Physical Society
Citation:	Physical Review Letters, 121(2). https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.121.022504
Abstract:	Final-state kinematic imbalances are measured in mesonless production of $\nu\mu+A \rightarrow \mu^-+p+X$ in the MINERvA tracker. Initial- and final-state nuclear effects are probed using the direction of the μ^- -p transverse momentum imbalance and the initial-state momentum of the struck neutron. Differential cross sections are compared to predictions based on current approaches to medium modeling. These models underpredict the cross section at intermediate intranuclear momentum transfers that generally exceed the Fermi momenta. As neutrino interaction models need to correctly incorporate the effect of the nucleus in order to predict neutrino energy resolution in oscillation experiments, this result points to a region of phase space where additional cross section strength is needed in current models, and demonstrates a new technique that would be suitable for use in fine-grained liquid argon detectors where the effect of the nucleus may be even larger.
Description:	Only IISERM authors are available in the record.
URI:	https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.121.022504 (https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.121.022504) http://hdl.handle.net/123456789/1965 (http://hdl.handle.net/123456789/1965)
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