

Abstract Submitted
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High Energy Lepton Production Underground ALEXANDER BULMAHN, MARY HALL RENO, University of Iowa — The differential cross section for lepton pair production from muons in transit is reevaluated in a manner such that it is valid beyond low lepton mass and low momentum transfer regions. Our results are more broadly applicable than the approximate formulas in the literature. Given the high fluxes of atmospheric muons, we evaluate the high energy underground electron and tau fluxes associated with muons in transit. We also present a new analytic approximation to the charge current differential neutrino cross section useful over a large range of incident neutrino energies, and we compare the underground lepton fluxes from incident atmospheric muon and neutrino fluxes. We also compare the contributions from incident conventional and prompt fluxes for production of electrons and taus in underground detectors.

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