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Recent MiniBooNE Results: First Measurement of Monoenergetic Muon Neutrino Charged Current Interactions and a Search for Vector Portal Dark Matter

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This talk will present recent results from MiniBooNE, with a focus on the first measurement of monoenergetic muon neutrino charged current interactions. MiniBooNE's sensitive search for vector portal dark matter in the mass range 0.01–0.3 GeV will also be discussed. The NuMI beam absorber provides an intense source of 236 MeV muon neutrino events originating from kaon decay at rest that are observed by the MiniBooNE detector. The kaon-decay-at-rest (KDAR) neutrino represents a standard candle for studying neutrino-nucleus interactions, cross sections, and energy reconstruction in the hundreds of MeV region and can be used for a number of precision measurements. This result is the first known-energy, weak-interaction-only probe of the nucleus to yield a measurement of neutrino-nucleus energy transfer ($\omega = E_\nu - E_\mu$).

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