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Abstract for an Invited Paper  
for the DNP19 Meeting of  
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**Stuart Jay Freedman Award Talk: From Electrons to Neutrinos: Nuclear Effects in Oscillation Measurements**  
OR HEN, MIT

Precision accelerator-based neutrino oscillation measurements rely on precise and accurate modeling of the interaction of neutrinos with atomic nuclei. At the moment, our insufficient understanding of such interactions is a dominant systematic in extraction of neutrino oscillation parameters and can stand as a significant challenge for achieving the goals of next-generation neutrino oscillation experiments such as DUNE and T2-HyperK.

Following the spirit of Stuart Freedmans own research, this talk will focus on the synergy between nuclear and particle physics in searching for a deeper understanding of our universe. Specifically, I will present new results from novel experimental constrains on neutrino-nucleus interactions, from synergic measurements of wide phase-space neutrino and electron exclusive scattering reactions using the MicroBooNe (Fermilab) and CLAS (JLab) detectors. I will also show how such data allow addressing outstanding issues in neutrino physics such as the accuracy of incident neutrino energy reconstruction for oscillation analyses, and constraints on searches for physics beyond the standard model.