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Precision Studies at the Neutrino Frontier KARSTEN M. HEEGER, University of Wisconsin

Neutrinos were proposed as a remedy to explain nuclear beta decay and are now essential in our understanding of the Universe. Neutrinos determine the abundance of light elements, are critical to supernova explosions, and may hold the key to understanding the matter-antimatter asymmetry. Studies of neutrinos from the Sun and nuclear reactors have confirmed the prediction of solar models and provided evidence for neutrino flavor oscillation. The observation of neutrino oscillation is amongst the major discoveries and demands that we make the first significant revision of the Standard Model. The search for neutrinoless double beta decay is the only experimental approach to probing the Majorana nature of neutrinos and will provide insight into the fundamental nature of neutrino mass. I will review Stuart Freedman's contributions to neutrino physics and in advancing the field to precision measurements.