

Study of the Neutrino Magnetic Moment with the NOvA Near Detector

Predicted by the Standard Model as theoretical, massless particles, neutrinos have been the subject of many experiments since their first detection. It is now experimentally confirmed that neutrinos do have mass necessitating an extension to the Standard Model. Such an extension allows for other surprising neutrino properties, such as a neutrino magnetic moment. While neutrinos are observed to be neutral and do not couple to photons at leading order, higher order expansion of the interaction allows for coupling to the photon to occur and gives rise to a neutrino magnetic moment through quantum loop effects. This is a useful property for studying the Dirac or Majorana nature of neutrinos, as the predicted value of the magnetic moment would differ. This talk focuses on an introduction to the neutrino magnetic moment as well as discusses the current status of work being done on NO ν A utilizing the Near Detector to obtain an upper limit on the neutrino magnetic moment value.

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