Validation of neutrino energy estimation using electron scattering data MARIANA KHACHATRYAN, Mrs., LAWRENCE WEINSTEIN, Old Dominion University, CLAS COLLABORATION — To study neutrino oscillations, the knowledge of the initial neutrino energy is required. This energy cannot be determined directly because neutrino beams have a broad energy distribution. Instead, the initial energy is estimated from the final state particles using two main approaches. It can be determined either from the total energy of all the final state particles or, if the neutrino scatters quasi-elastically from a bound nucleon then the initial energy can be calculated approximately using the scattered angle and the energy of the outgoing charged lepton. However this is not the case in real experiments, where nuclei such as argon, iron, carbon or other heavy nuclei are used to have higher interaction rates. We have applied the methods of neutrino energy estimation to the Jefferson Lab CLAS electron scattering data and have studied how well we can reconstruct the beam energy from the scattered electron alone and from the scattered electron plus proton for a variety of targets and beam energies.

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