



Contribution ID: 22

Type: **not specified**

## Quasi-Elastic Neutrino Reactions on Carbon and Lead Nuclei

*Saturday, 17 February 2018 20:15 (15 minutes)*

We examine neutral-current quasi-elastic neutrino-nucleus reactions on  $^{12}\text{C}$  and  $^{208}\text{Pb}$  targets. We use the relativistic mean field theory approach to describe the nuclear dynamics. We compute the cross sections for the scattering of 150-MeV, 500-MeV and 1000-MeV neutrinos on a  $^{12}\text{C}$  target and study the effect of the strange-quark content of the nucleon which appears in these reactions via the isoscalar weak current. We compare our results with the data of the MiniBooNE experiment for mineral oil ( $\text{CH}_2$ ). We also calculate the cross section for the quasi-elastic neutron knockout reaction of 20 to 60-MeV neutrinos on a  $^{208}\text{Pb}$  target which is relevant to plans to use Lead as a target material in future supernova neutrino detectors.

**Primary author:** Dr HEDAYATIPOUR, Mohammad (University of Alberta)

**Co-author:** Prof. DE MONTIGNY, Marc (University of Alberta)

**Presenter:** Dr HEDAYATIPOUR, Mohammad (University of Alberta)

**Session Classification:** Session #5