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Title:	Estimation and Detection of Tau Neutrino Flux
Authors:	Divecha, Deesha
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Abstract:	Neutrinos are one of the most abundant particles in the Universe, yet neutrino interactions are very rare. This means that detecting neutrinos is quite challenging this is especially true for Tau neutrinos. $\nu \tau$ detection will give us incontrovertible evidence that our theory of neutrino oscillations is correct. It will also help verify the observation of Astrophysical neutrino flux is as expected. So $\nu \tau$ detection is of major significance. This work outlines the various methods used to detect $\nu \tau$ and some of the major Tau neutrino experiments. It also gives a estimation of expected $\nu \tau$ flux due to oscillation of Atmospheric muon and electron neutrinos as they pass through the Earth. The flux has been calculated at 4 different sites, each at a different latitude. The oscillation probabilities have been calculated using GLOBES. The aim is to be able to provide a theoretical estimate of the $\nu \tau$ flux for any experiment looking at atmospheric $\nu \tau$ appearance channel.
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