

First Upper Limit on the Admixture of a Decaying ν_τ

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Abstract

Recent studies investigating the nature of the ν , specifically those conducted at Super-K and SNO, have produced evidence supporting ν oscillation. This discovery would imply that neutrinos have mass, an inference which raises some significant questions. The existence of massive neutrinos indicates that lepton family number is not necessarily conserved. Are these massive neutrinos the “missing mass” of the Universe? Does the existence of massive neutrinos mean that there exist decaying ν 's? It is the answer to this last question which we seek. The purpose of this project is to provide an upper limit on ν decay by searching for evidence of ν_τ decay within the CLEO detector. Although we find no definitive evidence of ν_τ decay, we are able to place an upper limit on the admixture of a decaying ν_τ component.