

Department of Theoretical Physics

Free Meson Seminar

<i>Speaker</i>	:	Basudeb Dasgupta
<i>Topic</i>	:	Collective Flavor Oscillations of Dense Neutrinos in Supernovae
<i>Day, Date & Time</i>	:	Thursday, March 13, 2008 at 2:30 p.m.
<i>Place</i>	:	AG 69

Abstract

Neutrinos oscillate collectively when their number densities are sufficiently large, as in the case of neutrinos emitted from a core collapse supernova. We develop a formalism that describes such phenomena, viz. synchronized oscillations, bipolar oscillations and spectral split, for three neutrino flavors. We demonstrate that the flavor evolution may be “factorized” into two-flavor oscillations with hierarchical frequencies. We apply these ideas to a typical SN, where we demonstrate the interplay between collective and MSW effects, and predict some interesting signatures observable at large neutrino detectors.

(Saumen Datta)