Area Seminar

Title	Minimal Textures in Seesaw Mass Matrices and their low and high Energy Phenomenology.
Date and Time	28/07/2011 16:00:00
Speaker	Subrata Khan PRL, Ahmedabad
Area	Theoretical Physics
Venue	Room No. 469
Abstract	In the context of minimal see-saw framework, we discuss the implications of Dirac and Majorana mass matrices with texture zeros within the type I see-saw mechanism. For the Dirac mass matrices we consider 5 zero textures which we show to be the most minimal form that can successfully account for low energy phenomenology if the Majorana mass matrices are chosen minimal as well. For those, we consider both diagonal and even more minimal non-diagonal forms. Next we discuss the implications of Dirac and Majorana mass matrices in which two properties coexist, equalities among matrix elements in addition to texture zeros. Among the large number of general possibilities, only 12 patterns are found to be consistent with the global neutrino oscillation data at the level of the most minimal number of free parameters. The predictions of the allowed textures for mass hierarchy, ?13 are discussed. We also explore the possibility of having non-zero CP violation for each allowed solution. We find that only one allowed solution can accommodate both low and high energy CP violation. We discuss the prediction of this solution for leptogenesis and explore the correlation, between leptogenesis and low energy CP violation.