

Understanding the Observed Pattern of Neutrino Mixing



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Since the discovery in 1975 by Martin Perl of the tau lepton, it has long been known that there are three flavors of leptons. In 2000, with the discovery of the tau neutrino, the lepton family was completely established.

But it is only with the discovery of neutrino oscillations by Kamiokande and others that it has become clear that the neutrinos mix among themselves much like the quarks. For the quarks, decades of accelerator experiments have revealed the Cabibbo-Kobayashi-Maskawa matrix to be a rich source of hidden symmetries and CP violation. For the leptons, the experiments are still in the beginning stage of studying the neutrino mixing, and a whole new frontier is waiting to be revealed.

The recent proposal by Friedberg-Lee of a maximally time-reversal symmetry violating neutrino mixing matrix is an important pointer to this new frontier. Prof Xing has long been an expert in the field of neutrino physics, and has made contributions to the Friedberg-Lee model of neutrino mixing. He will give an introduction to this new field of research and review the history of the study of neutrino mixing.