

Discovery of Neutrino Oscillations: the Experimental Program

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We will start with a brief analysis of the theoretical implications of the discovery of the massive character of the neutrino particle. We will review the evolution of the main experimental technique -Water-Cherenkov-, which is the key for statistically significant measurements of neutrino fluxes since it allows the instrumentation of very large mass detectors. We will discuss how the Super-Kamiokande experiment did unambiguously establish oscillations in neutrinos created at the interaction of cosmic rays with the atmosphere and measured precisely the neutrino (electron) flux from the Sun confirming its deficit with respect to the expectations from the Standard Solar Model. The SNO experiment, because of the use of Heavy-Water, was able to measure the solar fluxes of the three neutrino flavors and did establish that the neutrino (electron) deficit was not a deficit in solar neutrinos, but a consequence of their flavor oscillation in their way to the Earth.

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Hora: 12:00 horas

Lugar: AULA III (TRILINGÜE)