



Graduate Physics Seminar
29 October 2012 from 4PM
University of Nova Gorica
Vipavska 13, Rožna dolina, Nova Gorica
P-1 Lecture room

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Recent Progress in Neutrino Physics

Abstract

Neutrinos are the most abundant elementary particles in nature that we know of, with a number of natural sources. They are electrically neutral and interact only via weak interactions, which makes them difficult to detect. Until recently, neutrinos were believed to be massless and to possess only left-handed helicities, as described in the Standard Model of elementary particles.

The discovery of neutrino oscillations provided experimental evidence for neutrino flavor conversion mechanism, implying non-zero neutrino masses, which in turn makes the Standard Model description of the leptonic sector inadequate and demands New Physics. In addition, it also implies neutrinos interact via gravitational interactions, which may affect their role in astrophysics and cosmology.

In this seminar I will speak about the prospects of neutrino physics: starting with neutrino history I will explain what is known and what is not known about neutrinos and what was the contribution of recent experiments to the advance of knowledge in this field.