

FLASY 2025 - 11th Workshop on Flavour Symmetries and Consequences in Accelerators and Cosmology



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Leptogenesis with low-energy Dirac CP-violation

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The present Baryon Asymmetry of the Universe (BAU) can be explained in the framework of the type-I seesaw mechanism for neutrino mass generation through leptogenesis (LG). The L-, C- and CP-violating processes involving the right-handed neutrinos can generate an early lepton asymmetry, which is later converted into the present BAU by sphalerons. Remarkably, all the necessary CP-violation necessary to explain the present BAU via LG can originate uniquely from the Dirac phase of the neutrino mixing matrix, thus providing a direct link to CP-violation in low-energy neutrino oscillations. I will review the state-of-the-art understanding of the LG mechanism and concentrate on the scenarios with low-energy Dirac CP-violation with either 2 or 3 right-handed neutrinos. Possibilities to test the discussed scenarios at low-energy neutrino experiments, at heavy neutral lepton searches and experiments looking at lepton flavour violation will also be presented.

Primary author: GRANELLI, Alessandro (Istituto Nazionale di Fisica Nucleare)

Co-authors: KLARIC, Juraj (Universite Catholique de Louvain (UCL) (BE)); PETKOV, Serguey (Istituto Nazionale di Fisica Nucleare)

Presenter: GRANELLI, Alessandro (Istituto Nazionale di Fisica Nucleare)

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