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The implementation of the Type I seesaw mechanism for neutrino masses in the context of left-right theories

The implementation of the Type I seesaw mechanism for neutrino masses in the context of left-right theories where parity is spontaneously broken is investigated. We propose a simple left-right symmetric theory where neutrino masses are generated through of seesaw mechanism Type I. We study the left-right symmetric model, which has a totally real Lagrangian density of Yukawa, to avoid explicit complex phases, and a sector of scalar bosons with interesting and important properties: i) the presence of two complex phases originated in the spontaneous rupture of the symmetry; ii) a wide variety of neutral, charged, double charged scalar bosons and iii) the possibility of explaining the origin of the very small mass of the left neutrinos. In the same way, the model allows to explain in a natural way not only the origin of the CP violation but also the origin of the parity violation (P), and in addition it provides a physical meaning to the quantum number of hypercharge (Y), identifying it with the difference between baryonic and leptonic number (B-L).

Author: Mr CIFUENTES ESPITIA , pablo miguel

Co-authors: GUTIERREZ SAAVEDRA, Julian Steven (Universidad Nacional de Colombia); GUTIERREZ GOMEZ, Cristian Leonardo (IFT UNESP)

Presenters: Mr CIFUENTES ESPITIA , pablo miguel; GUTIERREZ SAAVEDRA, Julian Steven (Universidad Nacional de Colombia); GUTIERREZ GOMEZ, Cristian Leonardo (IFT UNESP)