

# Majorana Nature of Neutrinos and Non-Standard Interactions

报告人 / Speaker

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## 01 报告摘要 / ABSTRACT

Neutrino oscillation experiments have established that neutrinos have nonzero masses and lepton flavor mixing. This is currently the only firmly established experimental evidence in particle physics for physics beyond the Standard Model. It motivates several fundamental questions: whether neutrinos are Majorana particles, how their tiny masses are generated, and whether neutrino non-standard interactions exist. Among Standard Model fermions, only neutrinos can potentially be their own antiparticles. Their Majorana nature is closely connected to lepton number violation, CP violation, and possible clues to the matter-antimatter asymmetry of the Universe. On the other hand, generating neutrino masses usually requires new particles beyond the Standard Model. For example, in the type-II seesaw mechanism, an electroweak scalar triplet Higgs field generates Majorana neutrino masses, while the introduction of new particles can also lead to non-standard interactions. This talk will focus on the Majorana nature of neutrinos and non-standard interactions, using the type-II seesaw mechanism and a  $Z'$  model as two illustrative examples.

## 02 报告人简介 / SPEAKER BIO

Ming-Wei Li received his Ph.D. from the Tsung-Dao Lee Institute, Shanghai Jiao Tong University, and his bachelor's degree from Cuiying Honors College, Lanzhou University. His research interests include neutrino physics, particle physics phenomenology, and new physics models. During his Ph.D. studies, he worked on neutrino non-standard interactions, neutrino-antineutrino oscillations, lepton number violation, and the muon anomalous magnetic moment. His work has been published in journals including Physics Letters B and Journal of High Energy Physics. He was selected for the Tsung-Dao Lee PhD Program at Shanghai Jiao Tong University and served as the principal investigator of an NSFC Basic Research Program for Young Students (PhD students) project.

时间 / TIME

2026 年 7 月 6 日 (星期一) 10:00

Seminar begins at 10:00

地点 / LOCATION

1A804

Room