

## Dirac-Majorana neutrino type conversion induced by an oscillating scalar dark matter

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Some properties of a neutrino may differ significantly depending on whether it is Dirac or Majorana type. The type is determined by the relative size of Dirac and Majorana masses, which may vary if they arise from an oscillating scalar dark matter. We show that the change can be significant enough to convert the neutrino type between Dirac and Majorana while satisfying constraints on the dark matter. It predicts periodic modulations in the event rates in various neutrino phenomena. As the energy density and, thus, the oscillation amplitude of the dark matter evolves in the cosmic time scale, the relative size of Dirac and Majorana masses changes accordingly. It provides an interesting link between the present-time neutrino physics to the early universe cosmology including the leptogenesis. This talk is based on the recent paper (arXiv:2305.16900) by YeolLin ChoeJo, Yechan Kim, and Hye-Sung Lee.

**Authors:** LEE, Hye-Sung (KAIST); KIM, Yechan (KAIST); CHOEJO, YeolLin

**Presenter:** KIM, Yechan (KAIST)

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