

Left-right symmetric models with lepton portal dark matter

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I have proposed a simple model with (light) dark matters (DMs) that interact with leptons via Yukawa couplings, with S. Okawa and S. Iguro. The DMs can evade strong bounds from the DM direct detection experiments and predict some specific signals at the LHC. In this talk, I review the work shortly, and introduce a model with $SU(3) \times SU(2)_L \times SU(2)_R \times U(1)_{B-L}$ gauge symmetry and left-right (LR) symmetry, that can be interpreted as an underlying theory of the DM model. LR symmetric models can solve the strong CP problem, but need realize DM and tiny neutrino masses. In our model, tiny neutrino masses are induced by loop corrections involving DM. We see correlation between the neutrino mass matrix and DM physics.

Presenter: OMURA, Yuji (Kindai University)

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