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Dark Matter and Radiative Neutrino Mass with dark SU(2) gauge symmetry

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We discuss a model with dark sector described by non-Abelian $SU(2)_D$ gauge symmetry where we introduce $SU(2)_L \times SU(2)_D$ bi-doublet vector-like leptons to generate active neutrino masses and kinetic mixing between $SU(2)_D$ and $U(1)_Y$ gauge fields at one-loop level. After spontaneous symmetry breaking of $SU(2)_D$, we have remnant Z_4 symmetry guaranteeing stability of dark matter candidates. We formulate neutrino mass matrix and related lepton flavor violating processes and discus dark matter physics estimating relic density. It is found that our model realize multicomponent dark matter scenario due to the Z_4 symmetry and relic density can be explained by gauge interactions with kinetic mixing effect.

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