

We know that Magnetic-type of linear polarization, B-mode polarization, for the Cosmic Microwave Background can not be generated by Compton scattering in the case of scalar mode of matter perturbations but this is possible to have B-mode in framework of the Compton scattering in the case of tensor mode of matter perturbations. For this reason, the ratio of tensor to scalar mode of matter perturbation, r-parameter, is estimated (at least for small l) by comparing the B-mode power spectrum with E-mode one $\sim C_l^{BB}/C_l^{EE}$. We study the polarization of CMB specially B-mode polarization due to the weak interactions of Cosmic Neutrino Background (CNB) and CMB in addition to Compton scattering in both cases of scalar and tensor metric perturbations. In this framework, we show that B-mode polarization power spectrum C_l^{BB} receives some contributions from the scalar and tensor modes which have significant effects on the value of r-parameter and also we show that B-mode polarization power spectrum can be used as indirectly detector for CNB which is very difficult to detect for usual neutrino detectors.