

# Lepton Asymmetry and Neutrino Oscillations Interplay

*Thursday, 21 June 2012 17:00 (20 minutes)*

We discuss the interplay between lepton asymmetry  $L$  and neutrino oscillations in the early Universe. Neutrino oscillations may suppress or enhance previously existing  $L$ . On the other hand  $L$  is capable to suppress or enhance neutrino oscillations. The mechanism of  $L$  enhancement in resonant neutrino oscillations in the early Universe is numerically analyzed.

Lepton asymmetry cosmological effects through neutrino oscillations are studied. It is shown how  $L$  changes the BBN constraints on neutrino and how the BBN model with electron-sterile neutrino oscillations constrains lepton asymmetry. This model allows to obtain the most stringent constraints on  $L$  value.

We discuss also the cosmological role of active-inert neutrino mixing and  $L$  in connection with the indications about additional relativistic density in the early Universe, pointed out by BBN, CMB and LSS data and the analysis of global neutrino data.

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