Contribution ID: **49** Type: **not specified**

Non-thermal cosmic Neutrino Background

Thursday 1 October 2015 14:30 (15 minutes)

I will discuss that for Dirac neutrinos there could, in addition to the standard thermal cosmic neutrino background (CνB),
also exist a non–thermal neutrino background with comparable number density.
Today's relic density of the non–thermal background can be as large as 0.5*n_gamma.
It is constrained by the observational limits on the effective number of massless degrees of freedoms, N_eff, which thereby can be larger than 3.046 in the absence of any exotic states. Non–thermal relic neutrinos can be discovered by future experiments which are aiming to detect the CνB such as PTOLEMY.
I will also mention a scenario of chaotic inflation in which a non–thermal background can naturally be generated by inflationary preheating.
The non–thermal relic neutrinos, thus, may constitute a novel window into the very early universe.

Primary author: Mr TRAUTNER, Andreas (TU München)

Presenter: Mr TRAUTNER, Andreas (TU München)

Session Classification: Cosmology & Astroparticle Physics