Massive neutrinos in non-linear LSS

Tuesday 22 September 2020 17:11 (13 minutes)

Current and near future surveys are expected to map out the large-scale structure of the Universe at unprecedented precision. In order to extract information from observational data, a solid theoretical understanding is required, and in recent years considerable efforts has been dedicated to model the weakly non-linear regime using perturbative methods. In this talk, I will describe an algorithm for computing loop corrections to the matter power spectrum that can be applied to a wide range of extended cosmological models, due to its capability of fully capturing time- and scale-dependence of the underlying fluid dynamics. I discuss the application of this framework on massive neutrinos in non-linear LSS, using a hybrid Boltzmann/two-fluid model for the neutrino perturbations. Finally, a comparison with simplified treatments that only take neutrinos into account linearly is presented.

Primary authors: Dr GARNY, Mathias (Technical University of Munich);   Mr TAULE, Petter (Technical University of Munich)

Presenter: Mr TAULE, Petter (Technical University of Munich)

Session Classification: Cosmology and Astroparticles session on Zoom and in Main Auditorium

Track Classification: Cosmology & Astroparticle Physics