



Contribution ID: 156

Type: **not specified**

Screening approach to address relativistic species as sources of cosmological perturbations

Wednesday, 3 May 2023 17:50 (20 minutes)

Assuming nonnegligible relativistic component densities alongside the cold dark matter of the Λ CDM model, we reformulate cosmological perturbations within the framework of the cosmic screening approach. The scheme addresses all spatial scales, provided that gravitational interactions may be studied in the weak field limit to a good approximation. As a novel feature of the formulation, delta-shaped sources responsible for the inhomogeneous gravitational field are now allowed to be relativistic so that neutrinos or warm dark matter may also be incorporated into the extended model. Analytical expressions obtained for the first-order scalar potentials reveal that, like in the case of purely nonrelativistic matter studied previously, gravitational interactions of this wider class of components are also characterized by the time-dependent screening length, associated with the exponential cutoff introduced at large distances. (arXiv:2206.13495 [gr-qc])

Primary author: BRILENKOV, Maksym (University of Oslo)

Co-authors: YILMAZ, Ezgi (CASUS); Dr EINGORN, Maxim

Presenter: YILMAZ, Ezgi (CASUS)

Session Classification: Early Universe