

Block II: Scalar Fields and Non-Standard Expansion Histories I (Top-Down Realizations and Implications for Structure Formation) - Presentation

Thursday 5 September 2024 14:00 (30 minutes)

Co-Discussion Leaders: Rouzbeh Allahverdi, Sten Delos

This is the first of two blocks focused on modifications to the cosmological expansion history which can arise in the presence of additional scalar fields (other than epochs of early matter domination, which are not unique to scalars and thus will be covered in a different block). Such modifications include, for example, early dark energy, but would also include kination epochs and other epochs wherein the universe is dominated by a fluid with a 'stiff' ($w > 1/3$) equation of state. The discussion during this block will focus on two main topics related to these themes. The first is how cosmologies involving early dark energy or cosmological components with stiff equations of state can emerge in top-down constructions involving moduli and other light scalars. The second is how the evolution of cosmological perturbations is modified in the resulting cosmologies and how such modifications can affect the matter power spectrum and the development of structure on small scales.

Presenters: ALLAHVERDI, Rouzbeh (University of New Mexico); Dr DELOS, Sten (Max Planck Institute for Astrophysics)