



Contribution ID: 909

Type: **Invited talk in the parallel session**

Interacting vacuum cosmology and observational constraints

Monday 5 July 2021 16:52 (22 minutes)

An interacting vacuum, with fixed equation of state $w=-1$, provides a simple model for dark energy in our Universe today, distinct from models with a varying equation of state. I will review the phenomenology of simple models where the vacuum can exchange energy and momentum with dark matter and consider the observational bounds on the interaction coming from the cosmic microwave background and large-scale structure. Such models introduce a degeneracy between the Hubble constant and the interaction strength, which determines the evolution of the dark matter density. I will present some recent work modelling structure formation in this model and perturbations in the vacuum energy. I will discuss breaking the Hubble degeneracy in this model and the implications for current tensions in cosmology.

Primary authors: WANDS, David (University of Portsmouth); Mr KAEONIKHOM, Chakkrit (University of Portsmouth); Dr ASSADULLAHI, Hooshyar (University of Portsmouth); Dr SCHEWTSCHENKO, Jascha (University of Portsmouth)

Presenter: WANDS, David (University of Portsmouth)

Session Classification: Status of the H_0 and Σ_8 Tensions: Theoretical Models and Model-Independent Constraints

Track Classification: Cosmic Microwave Background: Status of the H_0 and Σ_8 tensions: theoretical models and model-independent constraints