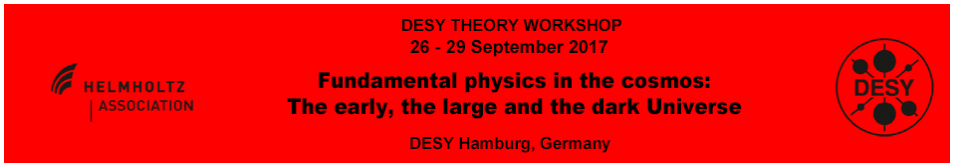

Contribution ID: **6** Type: **not specified**

Primordial black holes from inflaton and spectator field perturbations in a matter-dominated era

Thursday 28 September 2017 16:56 (17 minutes)

We study production of primordial black holes (PBH) during an early matter-dominated phase. As a source of perturbations, we consider either the inflaton field with a running spectral index or a spectator field that has a blue spectrum and thus provides a significant contribution to the PBH production at small scales. First, we identify the region of the parameter space where a significant fraction of the observed dark matter can be produced, taking into account all current PBH constraints. Then, we present constraints on the amplitude and spectral index of the spectator field as a function of the reheating temperature. We also derive constraints on the running of the inflaton spectral index, which are comparable to those from the Planck satellite for a scenario where the spectator field is absent.

Primary author: Dr TENKANEN, Tommi (Queen Mary University of London)

Co-authors: Prof. CARR, Bernard (Queen Mary University of London); Dr VASKONEN, Ville (Estonian National Institute of Chemical Physics and Biophysics)

Presenter: Dr TENKANEN, Tommi (Queen Mary University of London)

Session Classification: Parallel Session: Cosmology & Astroparticle Physics - PBH

Track Classification: Cosmology & Astroparticle Physics