

# Fundamental physics in the cosmos: The early, the large and the dark Universe



Contribution ID: 56

Type: **not specified**

## Axion Dark Matter Miniclusters

*Thursday 28 September 2017 14:51 (17 minutes)*

If the PQ phase transition happens after inflation, the axion energy density will have density fluctuations of order one. The size of the fluctuations is set by the horizon size at the QCD phase transition. Those fluctuations lead to the formation of gravitationally bound objects called miniclusters. A significant fraction of axion dark matter bound in miniclusters would have severe implication for axion dark matter search experiments. We present a semi-analytic method to calculate the power spectrum of the axion miniclusters and provide an estimate for the mass function at the time of matter-radiation equality.

**Primary author:** SCHWETZ-MANGOLD, Thomas (KIT)

**Co-authors:** PARGNER, Andreas (KIT); ENANDER, Jonas (KIT)

**Presenter:** SCHWETZ-MANGOLD, Thomas (KIT)

**Session Classification:** Parallel Session: Cosmology & Astroparticle Physics - Dark Matter

**Track Classification:** Cosmology & Astroparticle Physics