Contribution ID: **29** Type: **not specified**

Using axion mini-clusters to disentangle the axion-photon coupling and the dark matter density

Tuesday, September 19, 2023 4:30 PM (20 minutes)

Dark matter direct (and indirect) detection experiments usually can only determine a specific combination of a power of the coupling and the dark matter density. This is also true for axion haloscopes which are sensitive to the product g^2ρ, the combination of axion-photon coupling squared and the dark matter density. We show, that in the lucky case when we intersect with a so-called minicluster of a suitable size, we can utilize the spectral information available in haloscopes to determine the gravitational potential of the mini-cluster. We can the use this to separately measure coupling and density of the mini-cluster.

Authors: Prof. JAECKEL, Joerg; MONTOYA, Valentina; DANDOY, Virgile (Karlsruhe Institute for Technology)

Presenter: DANDOY, Virgile (Karlsruhe Institute for Technology)