



Contribution ID: 130

Type: **Poster**

Exploring the Cosmological Dark Matter Coincidence with Infrared Fixed Points

Tuesday 7 December 2021 08:20 (30 minutes)

The 5:1 ratio between the cosmological mass densities of dark matter (DM) and visible matter (VM) hints at a deep connection between the origins of the two sectors. While models connecting the number densities of DM and VM have been well-explored, very little work has focused on relating the mass of DM to the proton mass. This can be achieved if the DM is a confining state of a dark QCD gauge group whose confinement scale is similar to that of standard QCD. We further develop a framework proposed by Bai and Schwaller which uses infrared fixed points of the two gauge couplings to dynamically relate the VM and DM confinement scales without invoking any high-scale symmetries. We analyse the dependence of the confinement scale relationship on the initial gauge coupling values in the UV, and thus investigate how feasible it is for this framework to produce composite DM with a mass close to that of the proton.

Primary authors: RITTER, Alexander (The University of Melbourne); VOLKAS, Raymond

Presenter: RITTER, Alexander (The University of Melbourne)

Session Classification: Break and Poster Session