Contribution ID: **192** Type: **Parallel talk**

Dark Sector Tunneling Field Potentials for a Dark Big Bang

Monday, 8 July 2024 17:50 (20 minutes)

All of the significant evidence for dark matter observed thus far has been through its gravitational interactions. After 40 years of direct detection experiments, the parameter space for Weakly Interacting Massive Particles (WIMPs) as dark matter candidates is rapidly approaching the neutrino floor. In this light, we consider a dark sector that is strongly decoupled from the visible sector, interacting exclusively through gravity. In this model, proposed by Freese and Winkler (Phys.Rev.D 107 (2023) 8, 083522) dark matter can be produced through a first-order phase transition in the dark sector dubbed "The Dark Big Bang". In this study we fully determine the allowed region of parameter space for the tunneling potential that leads to the realization of a Dark Big bang and is consistent with all experimental bounds available.

Primary authors: ILIE, Cosmin (Colgate University); CASEY, Richard (Colgate University)

Presenter: CASEY, Richard (Colgate University)

Session Classification: Parallel 2

Track Classification: Parallel session: Cosmology Dark Matter