

Israeli Joint Particle Physics Meetings 2020-2021

Contribution ID: 1

Type: **not specified**

TBA

Wednesday, October 28, 2020 11:00 AM (1 hour)

The talks will be given remotely:

Topic: Israeli joint seminar - Balkin/Caputo

Time: Oct 28, 2020 11:00 AM Jerusalem

Join Zoom Meeting

<https://technion.zoom.us/j/98260375922?pwd=dDJqdHBSa3pmY3Z5WEs3NEU0aENKZz09>

Meeting ID: 982 6037 5922

Passcode: HEP_joint

Reuven will talk about:

Landscape instabilities from finite density effects

Abstract:

We consider finite density effects in models with a metastable ground state. We find that sufficiently dense objects, such as neutron stars, can destabilise the metastable minimum, allowing for classical formation of bubbles of a new vacuum. As we show, these bubbles are not necessarily confined to the dense region, but can escape to infinity. This leads to a phase transition in the universe after the formation of stars, and therefore has significant impact on e.g. solutions to the electroweak hierarchy problem based on dynamical selection of the electroweak vacuum. We work out the phenomenological consequences of such density triggered late phase transitions and put new constraints on the parameter space of some benchmark relaxation models.

Andrea will talk about:

Beyond the Standard Model with CMB and 21 cm data

I will introduce some well motivated Beyond The Standard Model (BSM) candidates and explain their effects on cosmological/astrophysical observables such as 21 cm and CMB data. In particular, I will first focus on Photon/ Dark Photon conversion in our inhomogeneous universe and its effect on the CMB spectrum. Then, I will add an axion-like particle to the model, which can play the role of dark matter, and investigate the effect of this extra energy injection onto the measured global 21-cm signal.

Presenters: CAPUTO, Andrea (University of Valencia); BALKIN, Reuven (Technical University of Munich)