Contribution ID: **2** Type: **not specified**

# TBA

*Wednesday 4 November 2020 11:00 (1 hour)*

The talk will be given remotely:

Topic: Israeli joint seminar - Madge/Gouttenorie
Time: Nov 4, 2020 11:00 AM Jerusalem

Join Zoom Meeting
https://technion.zoom.us/j/91033490160?pwd=OXJXUWVObWJYNWRRVVpxbTB1OGpCdz09

Meeting ID: 910 3349 0160
Passcode: Hep_joint

Eric will talk about
Constraining Secluded Hidden Sectors with Gravitational Waves

Abstract:
Thermal hidden sectors with particles at sub-MeV scales are subject to constraints from the effective number of neutrino species, which require these sectors to decouple from the Standard Model and to be colder than the photon bath around and after the epoch of Big Bang Nucleosynthesis. We discuss how this affects cosmological first-order phase transitions and the corresponding stochastic gravitational wave background in such a hidden sector. We demonstrate that is possible to construct models that comply with the constraints and still produce a gravitational wave signal that is detectable via future pulsar timing experiments.

Yann will talk about
Heavy Dark Matter: Models and Methods of Detection beyond the Standard Paradigm

Abstract:
Thermal Dark Matter much heavier than about 100 TeV is constrained by the unitarity bound on the annihilation cross-section. However, this can be evaded in presence of entropy injection which dilutes the DM abundance. In my talk, I discuss two possible sources of entropy injection.
First, the entropy injection following reheating after an early matter era, when a heavy spectator field, dominating the energy density of the universe, decays into radiation.
Second, the entropy injection following reheating after an early stage of vacuum domination generated by a supercooled confining first-order phase transition. Considering the scenario where DM is a bound-state of a new confining force, I show that a variety of new effects, string fragmentation and deep-inelastic-scattering, play an important role for setting the final DM abundance.
Such scenarios involve non standard cosmologies (either matter era or inflationary era inside the radiation era) and can be probed using the would-be imprints on the Gravitational-Waves (GW) spectrum from Cosmic Strings if observed with future GW detectors.

**Presenters:** Mr MADGE, Eric (Johannes Gutenberg University Mainz); GOUTTENOIRE, Yann (Deutsches Elektronen-Synchrotron DESY)