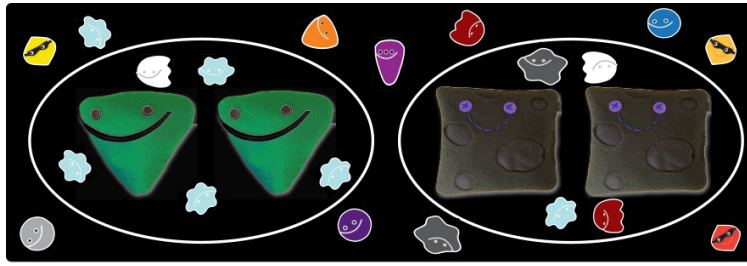


Quarkonia meet Dark Matter



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Monopole transitions via emission of a charged scalar and their importance for dark matter coupled to the Higgs

Friday, 18 June 2021 20:40 (25 minutes)

Abstract: The capture of particle-antiparticle pairs or pairs of identical particles into bound states via emission of a neutral scalar is a quadrupole transition that becomes phenomenologically significant only at rather large couplings. However, if the scalar carries a conserved charge, then its emission alters the Hamiltonian of the interacting particles, resulting in monopole transitions that can be extremely rapid even for small couplings. In models where multi-TeV DM or its co-annihilating partners couple to the Higgs doublet, the capture into unstable bound states via emission of a Higgs doublet can change the predicted dark matter density by orders of magnitude.

Presenter: PETRAKI, Kallia

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