

SUNny gluonia as DM

Abstract

Motivated by the notion that dynamical mass generation may be an essential ingredient, it is shown that lowest lying 0^{++} and 0^{-+} glueballs in a pure SUN gauge theory provide viable candidates. The process automatically leads to a possibly natural understanding of the gravitational observations of the only compelling evidence for DM that exists so far and simultaneously (naturally) accounts for the difficulty in direct detections. A specially intriguing feature is that such gluonia can undergo Bose-Einstein condensation and lead to gigantic dark stars composed of the SUN matter. This talk is based on work done in collaboration with Yue Zhang initiated in arXiv:1602.00714 and two follow-ups.