



Contribution ID: 14

Type: **not specified**

0.5 eV QCD Axion Dark Matter

Tuesday 23 September 2025 17:20 (20 minutes)

Even before Wilczek and Weinberg proposed the quantum chromodynamic (QCD) axion as a new light boson beyond the standard model, Sato and Sato used astrophysical considerations to suggest that such a particle cannot have rest-mass energy around 0.5 eV. A decade later, Turner and Raffelt used the observation of the neutrino pulse from supernova 1987A to come to the same conclusion. But a decade ago, Ayala et al. revisited the question and found a hint that 0.5 eV QCD axions might actually be preferred by observations of globular clusters. This talk proposes a simple model for 0.5 eV QCD axions. The model suggests a straightforward production mechanism of 0.5 eV axion dark matter in the early universe. Finally, the best present experimental evidence for 0.5 eV QCD axion dark matter will be briefly sketched.

Author: Dr BRAY-ALI, Noah (Science Synergy)

Presenter: Dr BRAY-ALI, Noah (Science Synergy)

Session Classification: Afternoon - 4