Contribution ID : **13** Type : **Online**

Probing Heavy Axion-like Particles from Massive Stars with X-rays and Gamma Rays

Monday, 28 July 2025 15:00 (30)

The hot interiors of massive stars in the later stages of their evolution provide an ideal place for the production of heavy axion-like particles (ALPs) with mass up to O(100 keV) range. We show that a fraction of these ALPs could stream out of the stellar photosphere and subsequently decay into two photons that can be potentially detected on or near the Earth. In particular, we estimate the photon flux originating from the spontaneous decay of heavy ALPs produced inside Horizontal Branch and Wolf-Rayet stars, and assess its detectability by current and future X-ray and gamma-ray telescopes.

Primary author(s) : Prof. DEV, P. S. Bhupal

Presenter(s) : Prof. DEV, P. S. Bhupal

Session Classification : Afternoon Session