

# Phenomenology 2025 Symposium



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## **BEC vortices as an observational signature of Ultra-light bosonic dark matter**

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Ultra-light bosonic dark matter (ULDM) is an interesting dark matter candidate. While the wave-like nature of ULDM has been widely studied in the literature, we explore another distinctive feature of ULDM as Bose-Einstein Condensate (BEC) in this paper: the emergence of vortices in rotating BEC-ULDM halos. Using numerical solution of the GPP equation, we demonstrate that a vortex lattice would form naturally in such systems given the Milky Way-like parameters. Furthermore, we study the gravitational lensing by these vortices as a possible observational signature of BEC-ULDM.

### **Mini Symposia (Invited Talks Only)**

### **Plenary (Invited talks only)**

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