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Type: **Talk**

Superfluid dark matter: from theory to observations

Monday 8 September 2025 18:00 (30 minutes)

In this talk we will review the model of superfluid dark matter, based on the existence of sub-eV particles with repulsive self-interactions. These particles are able to generate a superfluid core in galaxies upon Bose-Einstein condensation and thermalisation. We will delve into the various phenomenological implications of the model, including the formation of vortices, the behaviour around black holes and dynamical friction, and discuss prospects of detectability through gravitational wave experiments.

References

arXiv: 2505.23900

Author: DE LUCA, Valerio (University of Pennsylvania)

Presenter: DE LUCA, Valerio (University of Pennsylvania)

Session Classification: Afternoon session

Track Classification: Dark Matter (Its nature: Theory, Observations, Detection, Production at accelerators)