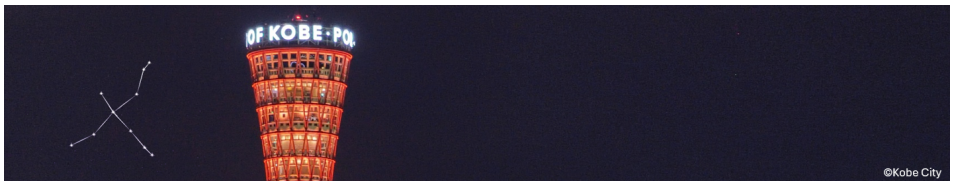

Contribution ID: **7** Type: **not specified**

The CYGNO experiment

Monday, 23 February 2026 09:10 (30 minutes)

We are going to present the CYGNO experiment whose goal is the development of a high precision optical readout gaseous TPC for directional Dark Matter search and solar neutrino spectroscopy, to be hosted at Laboratori Nazionali del Gran Sasso (LNGS). CYGNO (a CYGNus TPC with Optical readout) fits into the wider context of the CYGNUS proto-collaboration, for the development of a Galactic Nuclear Recoil Observatory at the ton scale with directional sensitivity. CYGNO peculiar features are the use of sCMOS cameras and PMTs coupled to GEM amplification of a helium-based gas mixture at atmospheric pressure, in order to achieve 3D tracking with head tail capability and background rejection down to O(1) keV energy. The 50 L prototype LIME, located in the underground laboratories at LNGS, has been taking valuable data in a realistic environment for rare event searches for two years. At the same time, the collaboration is starting the construction of a detector demonstrator of 0.4 m3 with the goal of demonstrating the scalability of the technology and physics reach. We will discuss the status of the CYGNO experiment focusing on the most relevant results attained with LIME prototype. Furthermore, we will describe the design and status of the CYGNO-04 detector, highlighting the improvements with respect to previous prototypes.

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Session Classification: Project status