

# Low-mass young stellar populations in the Milky Way: the next frontier with Gaia NIR

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Star formation occurs in high density environments or embedded clusters, but very young stars are also found in low density environments or stellar associations.

These regions are key tracers of the large-scale Galactic structure,

as well as pivotal astrophysical laboratories for understanding the complex physical phenomena involved in the star and planet formation process. They include large populations of embedded young stellar objects (YSO) that, depending on their evolutionary phase, can show an excess from the near-IR to the sub-mm, due to the presence of circumstellar material. In addition, they are mainly found in regions with high extinction, being enshrouded in the remnants of the molecular clouds from which they formed.

I will discuss the great impact in the comprehension of these structures over the past decades and how a forthcoming mission like GaiaNIR could represent a revolutionary step, akin to Gaia, by revealing hidden young populations. This would allow us to study

the star formation history, understand the mechanisms that trigger star and planet formation in different environments, and provide better tracing of the yet unknown spiral arms of the Milky Way.

**Primary author:** Dr PRISINZANO, Loredana (Istituto Nazionale di Astrofisica (INAF))

**Presenter:** Dr PRISINZANO, Loredana (Istituto Nazionale di Astrofisica (INAF))