

From star clusters to field populations: survived, destroyed and migrated clusters



Contribution ID: 17

Type: **not specified**

A new observable for probing star formation and dispersion with stellar clocks

Tuesday, 21 November 2023 15:20 (25 minutes)

Star formation is a fundamental process that impacts many fields of astrophysics, from the formation and evolution of planets to galaxies. The interaction between the natal cloud and the newborn stars is one of the least understood star formation processes and has an important impact on the final star-formation efficiency and cluster dynamics. I will present an innovative methodology to measure the timescale of the gas-embedded phase by comparing stellar ages derived with two independent methods: dynamical tracebacks and isochrone fitting. In this new framework, the dynamical-traceback “clock” initiates when a stellar cluster or association begins to expand after expelling most of the gas, while the isochronal “clock” initiates earlier when most stars form. Measuring this difference accurately and understanding its variations across different environments provides new information on the impact of local conditions and stellar feedback on the formation and dispersal of stellar clusters.

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Session Classification: Star formation and young clusters

Track Classification: Session 2