



Contribution ID: 67

Type: **not specified**

## **Alice Nucara - The Rosetta-Stone project: a comparison between observations and simulations to investigate the star-formation mechanism in massive regions**

*Monday, 12 June 2023 15:37 (1 minute)*

In the context of star-formation the Rosetta-Stone project aims to investigate the star-forming mechanisms governing a sample of massive clumps. To reach our goal we focus on the properties of a sample of 13 sources at various evolutionary stages selected from the SQUALO project, an ALMA 1.3 mm survey. The physical properties of the fragments identified in these images such as their number, mass, and relative distance will be interpreted thanks to the comparison with a statistically significant set of 24 radiative magnetohydrodynamics simulations analyzed at different time-steps and at different projections in the sky (increasing significantly the number of realizations used for the comparison). We explore different realizations of a set of parameters, some of which are known from the observed clump properties (such as clump mass and radius), and some not accessible from the available data (such as the clump initial Mach number or the flux to mass ratio). Each simulation is postprocessed to reproduce the typical features of the SQUALO observations done with ALMA, including realistic sources of noise. The comparison between real data and these sets of simulations will uniquely define on a statistical basis which are the most relevant factors that determine the fragmentation properties observed in massive clumps.

**Session Classification:** Posters: 1-minute talks