

# The PANTA-REI/SQUALO project: *clump-fed vs. core-fed* accretion mechanism in high-mass star-forming regions



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# The PANTA-REI/SQUALO project: *clump-fed* vs. *core-fed* accretion mechanism in high-mass star-forming regions

**Context:** The PANTA-REI project will study the multi-scale dynamics in Galactic massive star-forming regions with a focus on the gas dynamics and fragmentation properties at parsec and sub-parsec scales thanks to the exploitation of proprietary ALMA data.

**Objectives:** The PANTA-REI project will shed light on the interplay between gravity and turbulence in order to distinguish between *core-fed* and *clump-fed* models in massive star-forming regions.

**Datasets:** the analysis of the gas dynamics and clump fragmentation processes are exploited thanks to the dataset of the ALMA-SQUALO survey, a dedicated dataset of 13 clumps with evidences of parsec-scales collapse selected to investigate the different massive star-forming scenarios

**Fundings** for the PANTA-REI mini-grant: 20k euro

**Papers** published during the activity of the mini-grant:

- The SQUALO project (Star formation in QUIescent And Luminous Objects) I: clump-fed accretion mechanism in high-mass star-forming objects. Traficante, A. et al. MNRAS, 520, 2306 (2023)

**Conferences and workshops** attended to present PANTA-REI/SQUALO results:

- Cardiff, UK; invited colloquium and workshop with PANTA-REI/SQUALO collaborators (03/2023)
- Paris, FR; ECOGAL annual meeting with a session also dedicated to PANTA-REI/SQUALO analysis
- Bologna, IT; V workshop on mm astronomy in Italy (06/2023)
- Lyon, FR; Star@Lyon2023 conference (06/2023)
- Pasadena, US; The Universe on our own backyard (10/2023)

## Goals achieved

- Analysis on SQUALO continuum data concluded and published
- Workshops with PANTA-REI/SQUALO collaborators made possible thanks to the fundings

## Criticalities

- Some data from the PANTA-REI survey not acquired (not critical, as the main goal is the exploitation of the SQUALO data)
- a master student started to work with me on SQUALO data, but I could **not** pay her expenses on my mini-grant because it was not considered in the initial grant request. Some flexibility to spend these moneys if related to reach the goals of the project may be worth considering

## Future prospects

- A second paper on SQUALO data: analysis of the gas dynamics in the SQUALO sample
- A new (mini)grant to exploit the whole potential of the dataset and to maintain and extend the actual collaborations of the project