Chemical differentiation in the inner envelope of a young high-mass protostar

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Abstract

The origin of the highest mass stars is still an enigma in modern astrophysics. Only massive clumps, at the onset of star formation, can reveal the initial conditions and shed light on the necessary physical processes leading to their formation. From the 870 micron ATLASGAL survey of the inner Galaxy, we identified the complete sample of infrared quiet massive clumps located closer than 5 kpc. We targeted this sample in the frame of the SPARKS project with ALMA, reaching the physical scales of individual collapsing envelopes. Our sample uncovers a significant sample of the so far known highest mass Class 0 like protostars. Here I will discuss the first insights of the chemical diversity of the immediate vicinity of a young high-mass protostar in its main accretion phase.

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