

# Sulfur towards IRAS16293-2422 through the eyes of ALMA

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IRAS16293-2422 is a low-mass protostellar binary that is still in its youngest, embedded stages of formation. In such young systems, the evolution of volatiles and refractories is tightly bound. However, it is difficult to identify a tracer that may be a diagnostic of both. Sulfur may be such a tool thanks to its unique chemistry, which distributes it among both reservoirs. The goal of the student would be to gain insight into the spatial distribution of sulfur towards IRAS16293-2422 by analyzing ALMA data of high spatial resolution.

Key questions are:

- **What is the sulfur budget of young embedded protostellar objects?**
- **In what form does sulfur enter the building blocks of comets and protoplanets?**

Main steps of the project:

1. Visualize the spectrum towards a single position near IRAS16293-2422 and compare with available data
2. Identify sulfur-bearing molecules in this spectrum and compare with published work
3. Study the emission of sulfur-bearing molecules at multiple positions near IRAS16293-2422
4. Make integrated intensity maps of the region in various molecules and transitions

Skills learned/Knowledge gained by the student during the project:

- Physicochemical structure of low-mass star-forming regions
- Emission spectra of molecules
- How to work with ALMA data