Unexpected Sulfur Chemistry in a Comet Revealed with ALMA

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- A team led by Goddard scientists found surprising sulfur chemistry in the coma (atmosphere) of a comet found by the PanSTARRS project. Certain molecules, previously believed to be produced from gas, were instead found to be produced from the break-up of dust particles.

- This result could help explain why so little sulfur is observed in the gases that make up star-forming (and comet-forming) environments, since this work indicates that it may be hidden from our telescopes inside the dust particles that form the comets.

- Data were taken with the ALMA radio telescope using a special instrument compenent suited for observing comets. This is the first demonstration that this subcomponent can be used to take the complete chemical inventory of comets year-round.

Roth, N. X. et al., (2021), *The Astrophysical Journal, 921, 14.* https://doi.org/10.3847/1538-4357/ac0441

Comet C/2015 ER61 (PanSTARRS), the target of our study. (G. Rhemann)

The antennas of the Atacama Large Millimeter/submillimeter Array (ALMA). Tafreshi (twanight.org)