California State University | CHEMISTRY CHANNEL ISLANDS

CHEMISTRY SEMINAR

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Observing Our Interstellar Chemical Origins

Aliso Hall
Room 150

1PM, Friday
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2018

Free & open
to the public

ABSTRACT: Nearly 200 molecules have been detected in the interstellar medium (ISM), the regions between stars where giant clouds of dust and gas collapse into new stars and planetary systems. Of these molecules, about a third have six or more atoms and are designated as "complex." While the formation of these complex organics is not well-understood, they may be the key to understanding the chemistry that evolved to have even higher degrees of complexity observed in comets and meteorites. Astrochemistry is a growing field seeking to untangle the earliest steps of chemical evolution in the universe by combining astronomical observations, laboratory astrophysics, and chemical modeling. Observational astrochemistry is quickly advancing with the advent of increasingly sensitive radio telescopes, such as the Atacama Large Millimeter/submillimeter Array (ALMA) in Chile. Using such telescopes, radio astronomers can not only analyze patterns of different molecular species but can detect even the faintest signals from less-abundant isotopologues (molecules that are identical except for isotopic substitutions) in an attempt to constrain their formation. Better constraining the formation of complex organics in the ISM informs our understanding of the evolution of chemistry into what we observe in comets and meteorites and may even give insight into prebiotic chemistry.

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