

Michigan Astronomer to Search in Space for Precursors of Life

April 30 2009



The Orion Nebula is one of the places where astronomer Ted Bergin will search for organic molecules using the Herschel Space Observatory.

Many of the organic molecules that make up life on Earth have also been found in space. A University of Michigan astronomer will use the Herschel Space Observatory to study these chemical compounds in new detail in the warm clouds of gas and dust around young stars.

They hope to gain insights into how organic molecules form in space, and possibly, how life formed on Earth.

"The chemistry of space makes molecules that are the precursors of life. It's possible that the Earth didn't have to make these things on its own, but that they were provided from space," said Ted Bergin, an associate professor in the Department of Astronomy.

Bergin is a co-investigator on the Heterodyne Instrument for the Infrared aboard Herschel and a principal investigator on one of its key observing programs. Herschel, a [European Space Agency](#) mission with NASA participation, is scheduled to launch May 6. An orbiting telescope that will unlock new wavelengths on the [electromagnetic spectrum](#), it will allow astronomers to observe at the far-infrared wavelengths where organic molecules and water emit their chemical signatures.

"We'll be studying the full extent of chemistry in space and we hope to learn what types of organics are out there as a function of their distance from a star," Bergin said. "And we want to understand the chemical machinery that led to the formation of these organics."

Meteorites flecked with amino acids, which make proteins, have fallen to Earth from space. In faraway galaxies and stellar nurseries, astronomers have detected complex organic sugar and hydrocarbon molecules that are key components in chlorophyll in plants and RNA. Bergin expects to detect tens if not hundreds of these kinds of compounds---some of which have never been found before outside the Earth.

He is also involved in a Herschel project to look for water molecules in space. Traces of water in warm clouds of gas and dust around young stars could hold clues to how water forms and behaves in space, and how this elixir of life came to be so abundant on Earth. Scientists believe water got to Earth in a similar way as [organic molecules](#).

"Most of the water in the solar system is not where we are, but further

out in the solar system," Bergin said. "Most theories suggest that the Earth formed dry and impacts from asteroids or other objects provided the water here."

Provided by Herschel [Space](#) Observatory

Citation: Michigan Astronomer to Search in Space for Precursors of Life (2009, April 30)
retrieved 23 April 2024 from
<https://phys.org/news/2009-04-michigan-astronomer-space-precursors-life.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.