

# WHAT IS THE BUZZ ABOUT THE NEW 'INTERSTELLAR OBJECT'?

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Artist's impression of the first interstellar object: Oumuamua.

The cigar-shaped rocky object, our first visitor from another solar system is continuing to throw new surprises and is keeping astronomers on their toes.

On December 18, scientists from Queen's University, UK published a letter in *Nature*, stating that the interstellar object that whizzed past our sun in October is made up of icy interiors and carbon-rich surfaces. This has raised many interesting questions as carbon is known as the building block of life.

"Most likely it is of natural origin, but because it is so peculiar, we would like to check if it has any sign of artificial origin, such as radio emissions," said Avi Loeb, professor of astronomy at Harvard University to *The Guardian*. "The chances that we'll hear something are very small, but if we do, we will report it immediately and then try to interpret it," Prof. Loeb said.

"It would be prudent just to check and look for signals...It's really one of the fundamental questions in science, perhaps the most fundamental: are we alone?" he added.

The first interstellar visitor has been named 'Oumuamua', which means messenger in Hawaiian.

Oumuamua was discovered by the Pan-STARRS telescope on October 16, 2017. Panoramic Survey Telescope and Rapid Response System (Pan-STARRS) consists of telescopes and cameras for wide-field astronomical imaging and is located at the Haleakala Observatory in Hawaii, USA.

A group of scientists from the US, Germany and Italy published in *Nature* that the object is extremely red in colour and has a highly elongated cigar shape with a radius more than 100 metres and a length of almost 400 metres.

Though the initial observation was made by Pan-STARRS, other telescopes from Gemini Observatories in Chile and Hawaii and the Very Large Telescope (VLT) in Atacama Desert aided the study. NASA's space telescopes Hubble and Spitzer also started tracking the unusual object in November.

It does not have an icy tail like a comet or any dust debris around it like asteroids. According to the NASA website, the object follows a hyperbolic path around the Sun at a very high speed that cannot be due to acceleration from the Sun's gravity alone. This object must have approached our solar system already with considerable initial speed. The object's high speed also means that the Sun's gravity cannot slow it down enough to keep it bound to our solar system. The object will leave, and end up with about the same speed with which it entered; only its direction will have changed.

Also the website says that the 10:1 elongation ratio of the object is simply not found for any of the objects within our solar system.

According to the NASA website, Oumuamua is travelling at about 38.3 kilometers per second

relative to the Sun. Its location is approximately 200 million kilometers from Earth. It further said, "The object passed Mars's orbit around November 1 and will pass Jupiter's orbit in May of 2018. It will travel beyond Saturn's orbit in January 2019; as it leaves our solar system, Oumuamua will head for the constellation Pegasus."

Another study published in *The Astrophysical Journal* letters says that almost 10,000 such interstellar objects maybe dashing past our sun.

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