

# Oumuamua

November 13, 2018

## Manifest Pedagogy

Inter-disciplining

The studies on origin of universe, space phenomena, celestial bodies and their observations are of prime importance for Prelims. Usually these are studied under Science & Technology, but there has been an inter-disciplining trend like IR or even economic issues being asked in geography. For eg., Indus Water Treaty, an IR topic was asked in geography. The above topic was chosen to give a peek to the students into this inter-disciplinary trend.

## In news

*Zippering into our solar system from above, an interstellar now known as Oumuamua, or 1I/2017 U1 swung around the Sun and shot away again.*

## Placing it in syllabus

1. Geography: Origin of universe and various space phenomena
2. Awareness in the fields of Space

## Static dimensions

1. Celestial bodies esp. Comets and Asteroids
2. Space observation

## Current dimensions

1. Telescopes in space observation
2. Alien probe speculation

# Content

'Oumuamua means "scout" or "messenger" in Hawaiian.

Astronomers used the **Spitzer Space Telescope** for over 30 hours of observations of 'Oumuamua in the infrared.

## Some observations and inferences on Oumuamua

- The object known as **1I/2017 U1 (and nicknamed 'Oumuamua)** was traveling too fast (54 miles per second) to have originated in our solar system. Comets and asteroids from within our solar system move at a slower speed, typically an average of **12 miles per second**.
- 'Oumuamua entered our solar system **from the rough direction of the constellation Lyra**, but it's impossible to tell where it originally came from. Thousands of years ago, when 'Oumuamua started to wander from its parent planetary system, the stars were in a different position so it's impossible to pinpoint its point of origin. **It could have been wandering the galaxy for billions of years.**
- 'Oumuamua is headed back out of our solar system and won't be coming back. It's rapidly **headed in the direction of the constellation Pegasus** and will cross the orbit of Neptune in about four years and cover one light year's distance in about 11,000 years.
- It is seen as a **speck of light** through a telescope, but its **unique rotation** leads us to believe that it's elongated like a cigar, about 10 times longer than it is wide.
- A rapid response observing campaign allowed us to watch as 'Oumuamua got an unexpected boost in speed. **The acceleration slightly changed its course from earlier predictions.**
- Unusual variations in the comet's brightness suggest **it is rotating on more than one axis.**
- **Comets in our solar system kick off lots of dust and gas**

when they get close to the sun, but 'Oumuamua did not, which led observers to consider defining it as an asteroid. It could be giving off gases that are harder to see than dust, but it's impossible to know at this point.

- The discovery of an interstellar object has been anticipated for decades. The space between the stars probably has billions and billions of asteroids and comets roaming around independently. Scientists understood that, inevitably, some of these small bodies would enter our own solar system. This interstellar visit by 'Oumuamua reinforces our models of how planetary systems form.
- **After January 2018, 'Oumuamua' was no longer visible to telescopes**, even in space. But scientists continue to analyze the data gathered during the international observing campaign and crack open more mysteries about this unique interstellar visitor.
- Because 'Oumuamua' is the **first interstellar object ever observed in our solar system**, researchers caution that it's **difficult to draw general conclusions** about this newly-discovered class of celestial bodies. Observations point to the possibility that other star systems regularly eject small comet-like objects and there should be more of them drifting among the stars.