Oumuamua Comet Discovery

Why in news?

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Scientists solved the mystery of the small, dark red cigar-shaped object that shot across cosmic neighbourhood late last year.

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What is Oumuamua?

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- Oumuamua - Hawaiian for “a messenger from afar arriving first”, was first spotted on October, 2017.
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- When it was spotted near the Solar System, astronomers were puzzled to classify the object in space, recently scientists discovered that this object is to be a comet.
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- When it was discovered, the oddly-shaped, about 800-m-long ‘Oumuamua was racing through space.
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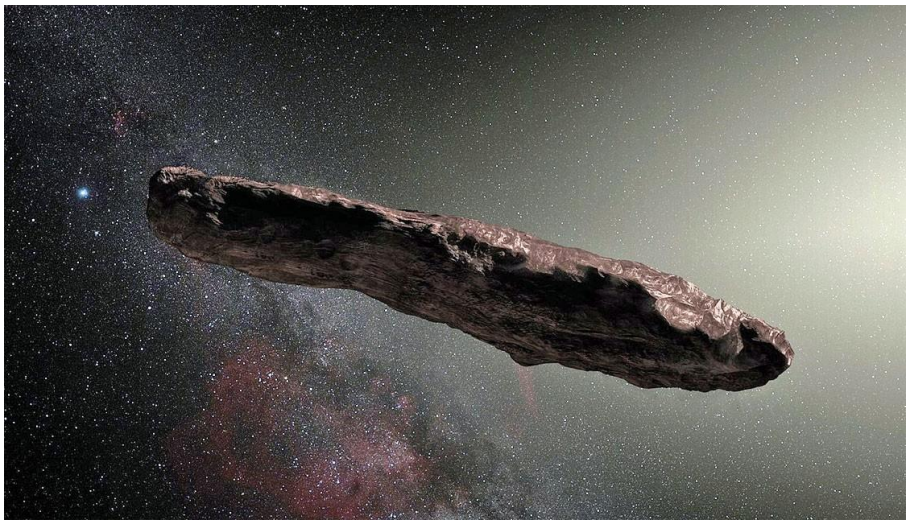

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- It was dark and faint, with no visible ‘coma’ (atmosphere of dust and gas around a comet’s core) or ‘tail’ (elongated cloud that points away from the Sun) signature identifiers of comets as they approach the inner Solar System.
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How astronomers found the object to be a comet?

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- Comets are icy chunks of frozen gases, space rock, and dust, It has fascinated humankind for over 2,000 years.
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- The absence of a visible tail in the case of ‘Oumuamua had initially led to its being classified as an asteroid.
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- Scientists discovered the object last year, has shown that comets do not necessarily vaporise and light up as they get close to the Sun.
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- The object’s spectrum (i.e. the colour of the light it reflects) is very similar to the Solar System comets, This supports it’s identification as a comet.
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How Oumuamua differs from other comets?

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- Oumuamua’s nucleus is probably similar to comets of our Solar System, although some aspects have to be different.
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- The dust grains have to be larger than typical for other Comets, which could be a reason for the absence of the characteristic cometary tail.
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- The tail we see in comets is typically made of fine dust lifted off the nucleus and dragged away by the emitted gas.
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- In the case of ‘Oumuamua, the dust is not visible because it’s made of larger grains, that are too heavy to be lifted off by the gas.
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- The gas itself is actually very difficult to detect, because the specific

molecules composing it (water, CO and CO2) are difficult to see in optical images.
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What are the insights from this findings?

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- There isn’t a lot of information about ‘Oumuamua, but the discovery provides exciting insights into the chemistry of objects born in other solar systems.
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- The lack of visible tail and activity makes objects harder to see, because they appear less bright.
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- If an object is active, the dust around it contributes to the overall brightness, making the object also easier to discover.
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- It has happened a few times that an object that looked asteroidal at the time of discovery was then noticed to have a coma or a tail, and therefore reclassified as a comet.
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- But once it has been discovered, the indirect method used to identify comets would prevent faulty classifications.
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Source: The Indian Express

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