

## CH<sub>3</sub><sup>+</sup> molecule

July 5, 2023 • vajiramandravi.com



### Why in news?

- Scientists found the fingerprints of the CH<sub>3</sub><sup>+</sup> molecule in light coming from a swirling disk of dust and gas around a young star.
- The disk is in the Orion Nebula, 1,350 light years from Earth.

### About CH<sub>3</sub><sup>+</sup> molecule:

- It is also known as **methyl cation**.
- CH<sub>3</sub><sup>+</sup> is a very **simple organic molecule**, just one carbon atom and 3 hydrogen atoms.

- It **reacts** with other molecules to **form more complex ones**.
- Its presence in space tells us that basic building blocks for life are out there.
- It is an initiator of a lot of very interesting more complex reactions

## What is the significance of this discovery?

- The discovery of methyl cation in a region where planets that could eventually host life are forming may help untangle this cosmic riddle and **help scientists better understand** how and where in **the universe life could get started**.

## Key facts about the James Webb Space Telescope

- This telescope was built in **collaboration between NASA, the European Space Agency (ESA) and the Canadian Space Agency** and was launched in December 2021.
- It is presently at a point in space known as the Sun-Earth **L2 Lagrange point**, approximately 1.5 million km beyond Earth's orbit.
- Lagrange Point 2 is one of the five points in the orbital plane of the Earth-Sun system.
- It's the largest, most powerful **infrared space telescope** ever built.
- **Objectives:** It will examine every phase of cosmic history; from the Big Bang to the formation of galaxies, stars, and planets to the evolution of our Solar System.

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## Q1) What is an organic molecule?

An organic molecule is a molecule that contains carbon atoms bonded to hydrogen atoms, and often other elements such as oxygen, nitrogen, sulfur, and phosphorus. Organic molecules are the building blocks of life and are essential for the structure and functioning of living organisms.

**Source:** [Why detecting carbon molecules in space matters](#)

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