

Dust Experiment (DEX)

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Dust Experiment (DEX) Latest News

Recently, the Indian Space Research Organisation confirmed through its first-ever Dust Experiment (DEX) that an interplanetary dust particle enters Earth's atmosphere approximately every 1,000 seconds.

About Dust Experiment (DEX)

- It is the first Indian-made instrument to hunt for these **high speed Interplanetary Dust Particles (IDPs)**.
- It is the first-of-its-kind instrument designed to detect **such high-transient particles**.
- It is developed by the **Physical Research Laboratory, Ahmedabad**.
- It was flown on **PSLV Orbital Experimental Module (POEM)** of the **PSLV-C58 XPoSat Mission** on January 1, 2024.

Features of Dust Experiment (DEX)

- It is a **compact instrument** tuned to hear impacts, capturing vital data.

- At the core of the experiment lies a **3-kilogram dust detector** based on the cutting-edge **hypervelocity principle designed** to capture high-speed space dust impacts with only 4.5 W power consumption.
- It rocketed to an **altitude of 350Km**.
- DEX is a blueprint of the detector which **can study the cosmic dust particle** at any planet having an atmosphere **or no atmosphere**.

Significance of the Dust Experiment (DEX)

- Its data redefines our understanding of the universe and charts the path for **safe human deep-space missions**.
- Understanding and collecting data on interplanetary dust in Earth's atmosphere will also be valuable for **planning Gaganyaan missions**.

What are Interplanetary Dust Particles (IDPs)?

- Interplanetary dust refers to **micrometer-scale** particles originating from the solar system.
- These are microscopic **shrapnel from comets and asteroids** that form our atmosphere's mysterious "meteor layer", and show up as "shooting stars" at night.
- These can be **analyzed to gain insights into their origins, formation mechanisms**, and the processes that occurred in **early solar and presolar environments**.

Source: **IE**

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