

# Amaterasu: Super-energetic particle

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## Why in the News?

Japanese scientists found a powerful cosmic ray on Earth named 'Amaterasu,' the second-highest-energy cosmic ray ever discovered.

## What is Amaterasu?

- It is one of the high-energy cosmic ray, named after the Japanese Sun goddess.
- It appears to have arrived from a void in space where nothing is known to exist.
- The Amaterasu particle possesses an energy surpassing 240 exa-electron volts (EeV), making it millions of times more powerful than particles produced by the Large Hadron Collider, the world's most powerful particle accelerator.
- It ranks second only to the Oh-My-God particle, another ultra-high-energy cosmic ray detected in 1991, which registered at 320 EeV.

## What are cosmic rays?

- They are high-energy particles, moving at nearly the speed of light, originate from the Sun, our galaxy, and distant galaxies.
- These particles can include protons, alpha particles (helium nuclei), and heavier ions.
- Ultra-high-energy cosmic rays are subatomic particles from extragalactic sources with energies greater than 1 EeV.

## Significance:

- They are crucial for studying astrophysical phenomena and understanding the properties of particles at very high energies.

