

# GHOST PARTICLES

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## **Context:**

Recently, astronomers detected 7 potentials 'ghost particles' that passed through planet.

## **Background:**

Scientists using data from the Ice Cube Neutrino Observatory in Antarctica believe they have potentially found the first evidence for astrophysical tau neutrinos, called "ghost particles".

## **About Ghost Particles:**

1. "Ghost Particles" is a nickname for neutrinos, which are tiny subatomic particles.
2. They are often called 'ghost particles' because they barely interact with anything else.

## **Key points about Neutrinos:**

1. Source: Neutrinos come from various sources and are often the product of heavy particles turning into lighter ones, a process called "decay".
2. Family: They belong to the family of particles known as leptons.
3. There are three main leptons, namely electrons, muons, and tau particles.
4. The last has proven to be especially difficult to observe and detect, earning the moniker of "ghost particle."
5. Characteristics: A neutrino is very similar to an electron, but has no electrical charge and a very small mass. They are the most common particle in the universe. Approximately 100 trillion neutrinos pass completely harmlessly through our body every second.
6. Detection: They are extraordinarily difficult to detect, as they rarely collide with atoms. Of the four fundamental forces in the universe, neutrinos only interact with two — gravity and the weak force.
7. Variety: They come in different types and can be thought of in terms of flavors, masses, and energies.
8. In recent developments, China is constructing the world's largest "ghost particle" detector, a massive underwater telescope in the South China Sea, designed to detect neutrinos.
9. The telescope, named Tropical Deep-sea Neutrino Telescope (TRIDENT), is expected to span 7.5 cubic kilometers and be 10,000 times more sensitive than existing underwater telescopes.