

Einstein Ring

Why in News?

Recently, the Euclid space mission of the European Space Agency (ESA) spotted an Einstein ring in the galaxy NGC 6505, just 590 million light-years from the earth.

NGC 6505 is an elliptical galaxy in the Draco constellation, about 608 million light years away from the Milky Way, discovered in 1884 by Lewis A. Swift.

- Bruno Altieri (Astronomer) 1st noticed the Einstein ring (Nicknamed as Alteri's Ring) in galaxy NGC 6505 in 2023 in a blurry image captured by Euclid mission of European Space Agency.
- **Einstein Ring** - An Einstein ring is a ring-shaped image that occurs when light from a distant galaxy is bent around a massive object in the foreground. This phenomenon is called ***gravitational lensing***.
- Albert Einstein's general ***theory of relativity*** predicted this phenomenon.

General relativity predicts that the path of light will follow the curvature of space time as it passes near a massive object.

- The gravity of the foreground object bends light rays, similar to how a magnifying lens bends light.
- If the background galaxy, the lensing galaxy, and the telescope are perfectly aligned, the image appears as a ring.
- **Significance** - Einstein rings are a valuable tool for scientists to study the expansion of the universe, dark matter, and dark energy.
- They also help scientists learn about the background source of the light that is bent by dark matter.
- An Einstein ring is also known as an ***Einstein-Chwolson ring or Chwolson ring***.
- Astronomers discovered the first Einstein ring in 1998.
- The largest and one of the most complete Einstein rings ever discovered is GAL-CLUS-022058s.

Reference

[The Hindu | Einstein ring](#)



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