Black Hole Gaia BH3

Source: DTE

Why in News?

Recently, astronomers have discovered a massive **Black Hole** in our **Galaxy**, named **“Gaia BH3”.**

- It’s the **2nd-closest** known Black hole to Earth. It is **33 times heavier** than the sun and the **most massive** black hole of **stellar origin** in the Milky Way, surpassing **Cygnus X-1.**
    - **Stellar black holes** are formed as a result of the collapse of a single star.

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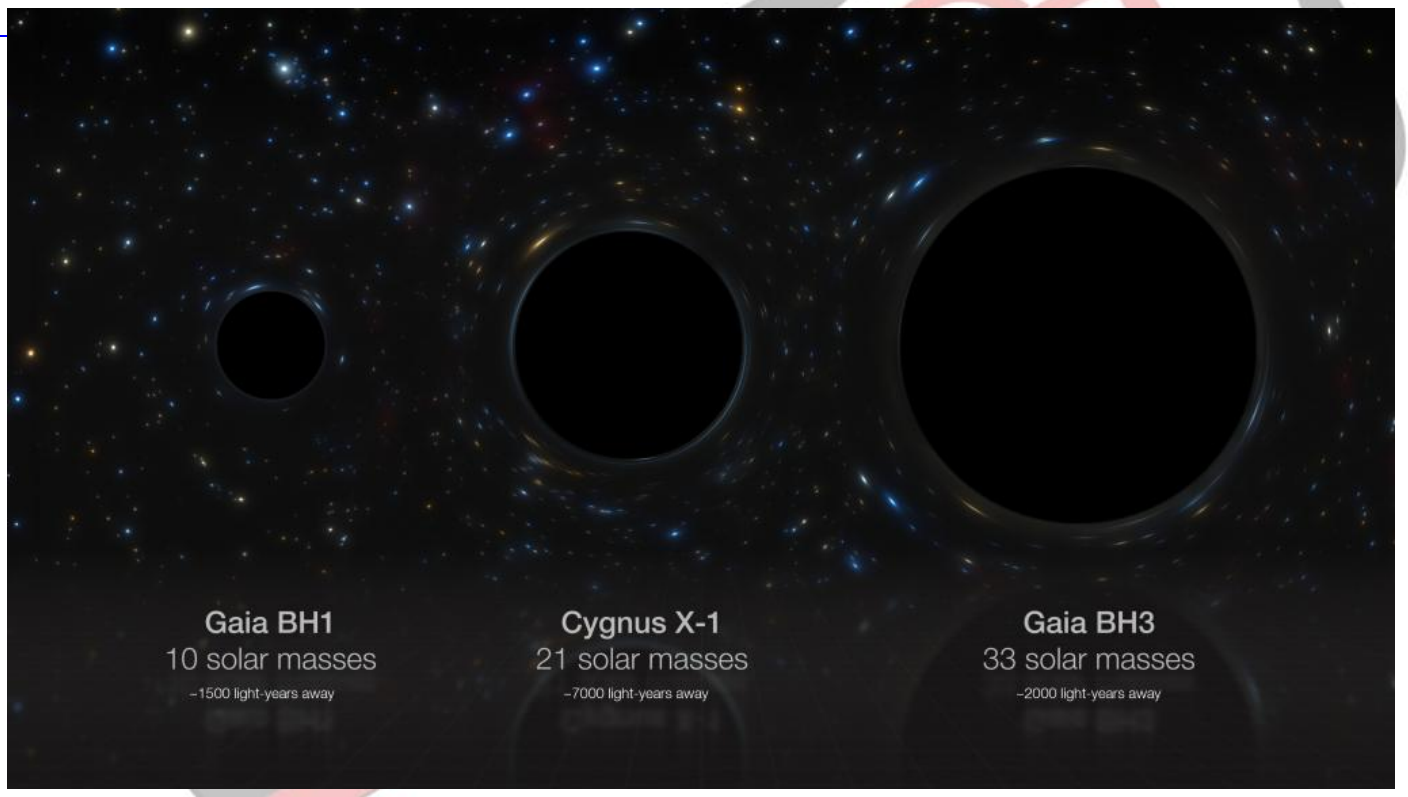
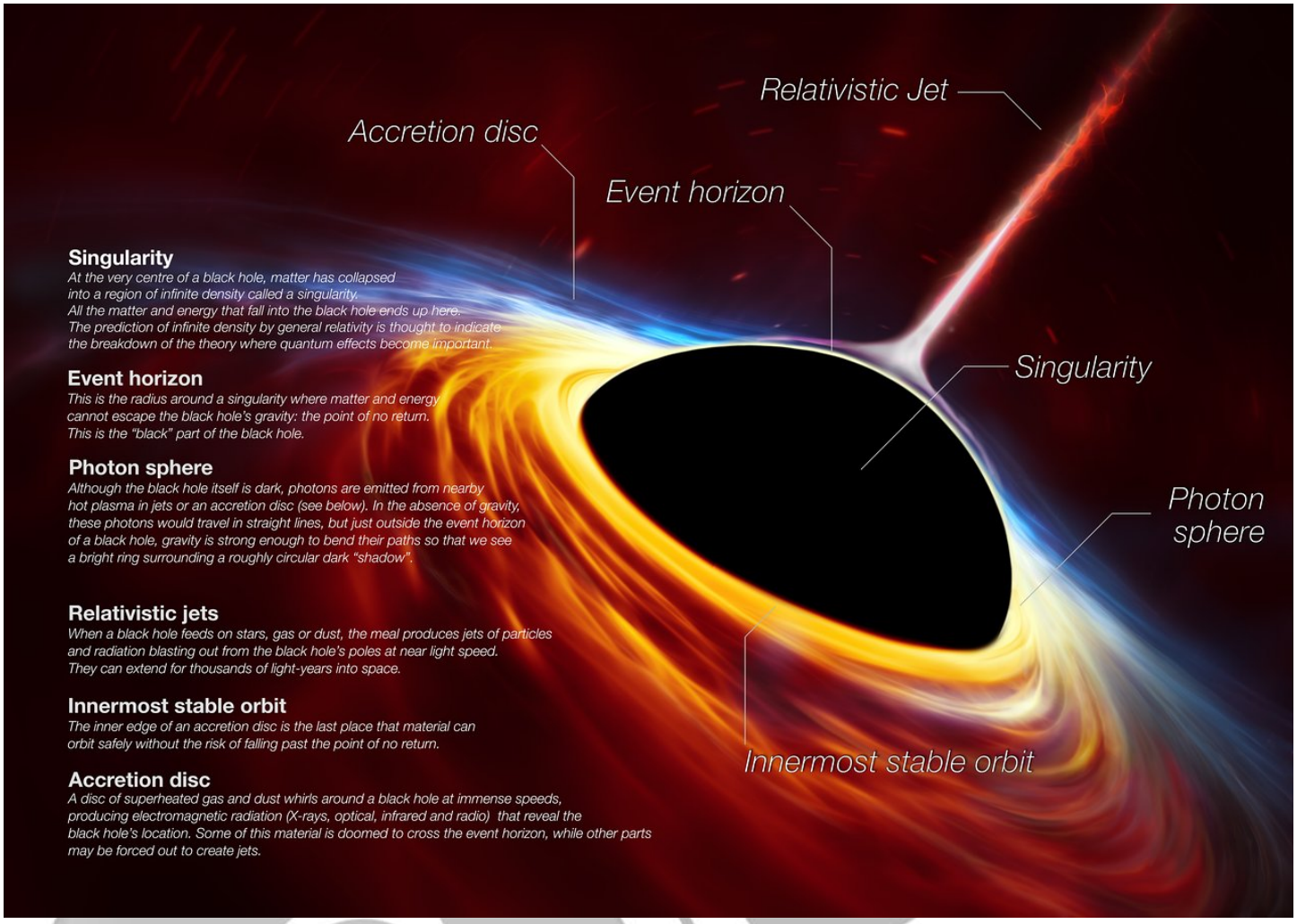


What are Black Holes?

- **About:**
    - Black holes are extraordinarily dense objects with **gravity** so strong that not even light can escape, making it difficult to spot them.
    - They are formed when a massive star collapses in on itself at the end of its life, creating an incredibly dense object with a gravitational pull that is **so strong that it warps space-time around it.**
- **Types of Black Holes:**
    - **Stellar Black Hole:** It is formed by the collapse of a single massive star.

- **Intermediate Black Hole:** Their masses are between 100 and 100,000 times that of the sun.
- **Supermassive Black Hole:** Their masses ranging from millions to billions of times that of the sun, found at the centres of most galaxies including our own **Milky Way galaxy.**



What is a Galaxy?

- A galaxy is a huge collection of gas, dust, and billions of stars and their solar systems, all held together by gravity.
- Earth is the part of the **Milky Way Galaxy,** which also has a super Massive Black Hole named **Sagittarius A at it's centre** whose mass is about 4 million times that of suns.

UPSC Civil Services Examination, Previous Year's Question

Q. Recently, scientists observed the merger of giant 'blackholes' billions of light-years away from the Earth. What is the significance of this observation? (2019)

(a) 'Higgs boson particles' were detected.
(b) 'Gravitational waves' were detected.
(c) Possibility of inter-galactic space travel through 'wormhole' was confirmed.
(d) It enabled the scientists to understand 'singularity'

Ans: (b)

Q. Consider the following phenomena: (2018)

1. Light is affected by gravity.
2. The Universe is constantly expanding.
3. Matter warps its surrounding space-time.

Which of the above is/are the prediction/predictions of Albert Einstein's General Theory of Relativity, often discussed in the media?

(a) 1 and 2 only
(b) 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

Ans: (d)