

# White dwarf star – J0240+1952

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**In news**– Recently, a team of astronomers have confirmed that full rotation once in 25 seconds is the fastest spinning white dwarf star J0240+1952.

## **About white dwarf star J0240+1952-**

- The astronomers have shown that it **is an extremely rare example of a magnetic propeller system.**
- It is located 2,016 light-years away in the constellation of Aries.
- According to them, **it is part of a binary star system; its immense gravity is pulling gaseous plasma from a nearby companion star** and flinging it into space at around 3,000 kilometres per second.
- It **is only the second magnetic propeller white dwarf to have been identified in over 70 years.**
- It is **almost 20% faster than the confirmed white dwarf** with the most comparable spin rate, which completes a rotation in just over 29 seconds.
- This particular star, named LAMOST J024048.51+195226.9 – or J0240+1952 is the **size of the Earth but is thought to be at least 200,000 times more massive.**

## **What is a white dwarf star?**

- White dwarf stars, so **called because of the white colour of the first few that were discovered**, are characterized by **a low luminosity.**
- Its **mass is comparable to that of the Sun**, while **its volume is comparable to that of Earth.**
- Because of their large mass and small dimensions, **such stars are dense and compact objects** with average densities approaching 1,000,000 times that of water.
- It is **a star that has burnt up all of its fuel and shed its outer layers**, now undergoing a process of shrinking

and cooling over millions of years.

- They have medium to high mass and are the **final evolutionary state of stars whose mass is not high enough to become a neutron star.**
- The **materials in a white dwarf star can no longer undergo fusion reactions**, so the star has no source of energy.