

Strongest Aurora found beyond solar system

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Washington: Astronomers have discovered the first aurora that is 10,000 times more powerful than any previously seen beyond the solar system.

The aurora - similar to the famous "Northern Lights" on Earth - was found not from a planet but from a low-mass star at the boundary between stars and brown dwarfs.

The discovery reveals a major difference between the magnetic activity of more-massive stars and that of brown dwarfs and planets, the researchers said.

Brown dwarfs, also called "failed stars," are objects more massive than planets, yet too small to trigger the thermonuclear reactions at their cores that power stars.

"All the magnetic activity we see on this object can be explained by powerful auroras," said Gregg Hallinan from the California Institute of Technology (Caltech).

This indicates that aurora activity replaces solar-like coronal activity on brown dwarfs and smaller objects.

The observations of the object LSR J1835 indicate that the coolest stars and brown dwarfs have outer atmospheres that support auroral activity, rather than the type of magnetic activity seen on more-massive and hotter stars.

The combination of radio and optical observations showed that the object, 18 light-years from Earth, has characteristics unlike any seen in more-massive stars.

The discovery also has implications for studying extra solar planets.

"What we see on this object appears to be the same phenomenon we've seen on Jupiter, for example, but thousands of times more powerful," Hallinan noted in a paper appeared in the journal Nature.

It may be possible to detect this type of activity from extra solar planets, many of which are significantly more massive than Jupiter, he concluded.

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