Mysterious Star Emitting Both Radio Waves and X-Rays

Source: IE

Astronomers have discovered a **unique celestial object** that emits **simultaneous radio waves and X-rays** every 44 minutes, marking it as a **rare member** of a newly identified class known as **long-period radio transients**.

- It is located in the **Milky Way galaxy** about 15,000 light-years from Earth in the direction of the **constellation Scutum.**
- **Long-period radio transients** emit **bright radio bursts** every few minutes to hours—much longer than typical **pulsars**, which blink **on and off** in **milliseconds to seconds** due to their **rapid rotation**.
    - **Pulsars** are rapidly rotating **neutron stars**, formed from the **collapsed core of a massive star** after it dies.
- **Nature of the object is still unknown**, with possible identities including:
    - A **magnetar** (a spinning neutron star with an **extreme magnetic field**)
    - A **white dwarf** in a **binary system** with a companion star.
        - **Stars** up to **eight times the mass of our Sun** end as **white dwarfs**. After using up their **hydrogen fuel**, they expand into **red giants**, **shed outer layers**, and collapse into a **dense, Earth-sized core** called a **white dwarf.**
- Researchers used data from **NASA's Chandra X-ray Observatory**, and **other telescopes** for their study.
- Radio waves have **long wavelengths and low frequencies,** primarily used for **communication** such as **radio and television**. **X-rays** possess **short wavelengths and high frequencies,** allowing them to penetrate materials and are widely used in **medical imaging**.

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