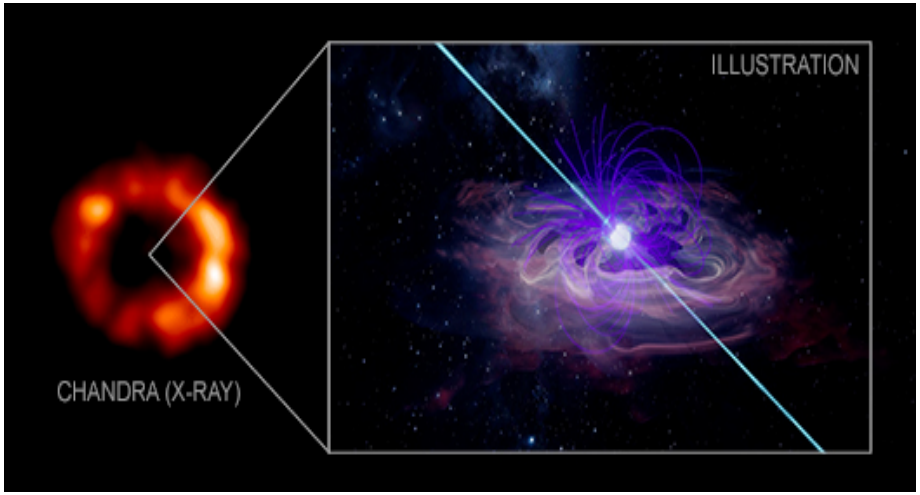
Chandra Science Highlight

Reclusive Neutron Star May Have Been Found in Famous Supernova



- Astronomers now have evidence from two X-ray telescopes (Chandra and NuSTAR) for a key component of a famous supernova remnant.
- Supernova 1987A was discovered on Earth on February 24, 1987, making it the first such event witnessed during the age of telescopics.
- For decades, scientists have searched for a neutron star in SN 1987A, i.e. a dense collapsed core that should have been left behind by the explosion.
- This latest study shows that a "pulsar wind nebula" created by such a neutron star may be present.

Distance estimate: About 168,000 light-years.

Caption: Astronomers have found evidence for the existence of a neutron star at the center of Supernova 1987A (SN 1987A), which scientists have been seeking for over three decades. The panel on the left shows a 3D computer simulation, based on Chandra data, of the supernova debris from SN 1987A crashing into a surrounding ring of material. The artist's illustration (right panel) depicts a so-called pulsar wind nebula, a web of particles and energy blown away from a pulsar, which is a rotating, highly magnetized neutron star.

Credits: X-ray: NASA/CXC/Univ. di Palermo/E. Greco; Illustration: INAF-Osservatorio Astronomico di Palermo/Salvatore Orlando

Instrument: ACIS

References: Greco, E., et al., 2021, ApJ, 908, L45; arXiv:2101.0929

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