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 telescopes. 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


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