



Chandra Science Highlight

A Cosmic Amethyst in a Dying Star



Caption: This image of the planetary nebula IC 4593 contains X-rays from Chandra (purple) from gas that has been heated to over a million degrees. These high temperatures were likely generated by material that blew away from the shrunken core of the star and crashed into gas that had previously been ejected by the star. Visible light data from Hubble (pink and green) in this image show combinations of nitrogen, oxygen, and hydrogen.

- Chandra has found a bubble of ultra-hot gas at the center of a planetary nebula.
- Planetary nebulas are formed when Sun-like stars run out of fuel, shedding their outer layers while the star's core shrinks.
- IC 4593 is at a distance of about 7,800 light years from Earth, which is the farthest planetary nebula detected by Chandra.
- A possible X-ray point source could be the star that shed its outer layers or a companion star in this system.

Distance estimate: 7,800 light years

Credits: X-ray: NASA/CXC/UNAM/J. Toalá et al.; Optical: NASA/STScI

Instrument: ACIS

Reference: Toalá, J. A., et al., 2020, MNRAS, v494, 3784;
[arXiv:2004.04542](https://arxiv.org/abs/2004.04542)

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