

Search input field with magnifying glass icon

Chandra Finds Hot Bubble in Planetary Nebula IC 4593

Nov 13, 2020 by Enrico de Lazaro

« Previous | Next »

Published in Astronomy

Tagged as

- Chandra
- ESA
- Gas
- Hubble
- IC 4593
- NASA
- Nebula
- Planetary nebula
- Star
- X-rays

Follow



You Might Like



Supermassive Black Hole Triggered Star Formation in Dwarf Galaxy



Universe is Teeming with Quintillions of Stellar-Mass Black Holes

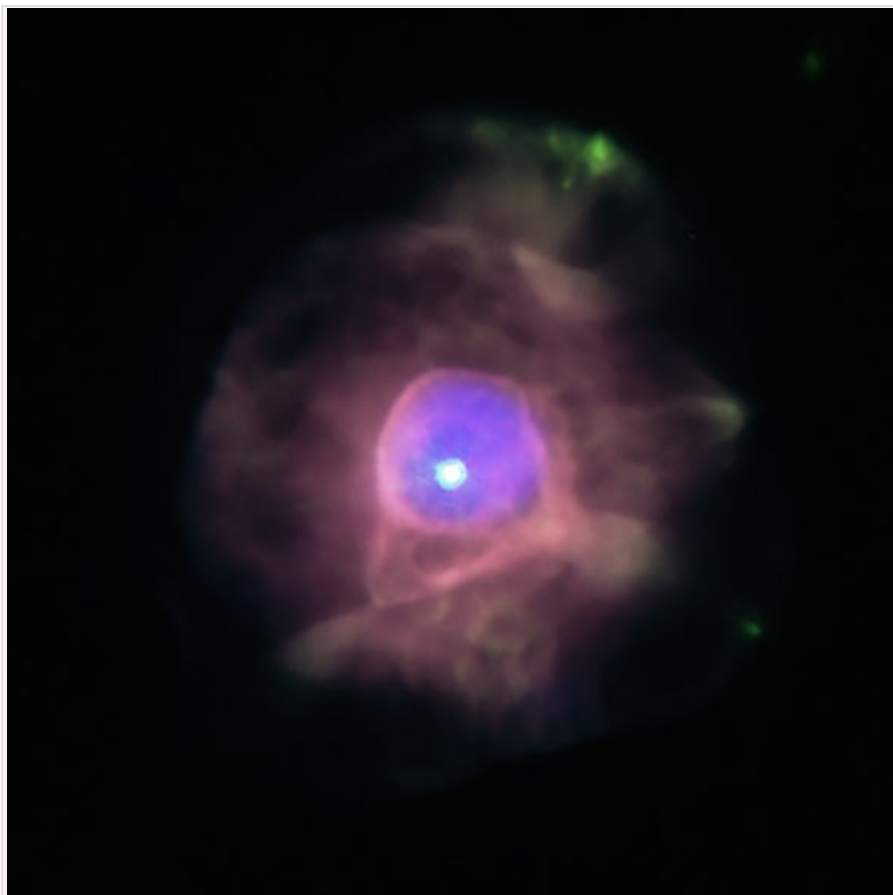


Astronomers Analyze Impact of SpaceX's Starlink Satellites



Computer Simulations Shed New Light on Gas Giant Formation

Astronomers using NASA's Chandra X-ray Observatory have spotted a bubble of ultrahot gas at the center of a planetary nebula called IC 4593.



This composite image of the planetary nebula IC 4593 contains X-rays (Chandra) 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 in the image show combinations of nitrogen, oxygen, and hydrogen.

Image credit: NASA / CXC / UNAM / J. Toala et al. / STScI.

IC 4593 is located approximately 7,800 light-years away in the constellation of Hercules.

Also known as HD 145649 or IRAS 16093+1211, this object is the farthest planetary nebula detected in X-rays by Chandra.

Its hot bubble is one of the smallest among planetary nebulae, besides BD+30 3639, IC 418, and NGC 7027.

It contains 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 original star and crashed into gas that had previously been ejected by the star.

"IC 4593 is what we call a planetary nebula, a deceptive-sounding name because this class of objects has nothing to do with planets," the astronomers said.

LATEST NEWS



Study: Frequency of Asteroid Impacts in Inner Solar System Constant over Past 600 Million Years
Jan 21, 2022 | Planetary Science



New Species of Legume Found Preserved in Dominican Amber
Jan 21, 2022 | Paleontology



New Species of Branching Worm Discovered in Waters Off Japan
Jan 21, 2022 | Biology



Coffee Consumption Has Stimulating Effect on Digestive Processes, New Review Says
Jan 21, 2022 | Medicine



Albatrosses Can Dive to Much Greater Depths than Previously Thought
Jan 20, 2022 | Biology



Supermassive Black Hole Triggered Star Formation in Dwarf Galaxy
Jan 20, 2022 | Astronomy



Saturn's Moon Mimas Hosts Global Ocean, New Study Suggests
Jan 20, 2022 | Planetary Science



Researchers Create Deep-Ultraviolet Light-Emitting Diode
Jan 20, 2022 | Electrical Engineering



Giant Pandas Gain More Weight when Eating Bamboo Shoots: Study
Jan 20, 2022 | Biology



Universe is Teeming with Quintillions of Stellar-Mass Black Holes
Jan 19, 2022 | Astronomy



Scientists Compile First Global Inventory of Subglacial Lakes
Jan 19, 2022 | Geography



Africa's Oldest Known Modern Human Fossils are 233,000 Years Old, Research Suggests
Jan 19, 2022 | Anthropology



Astronomers Analyze Impact of SpaceX's Starlink Satellites
Jan 18, 2022 | Astronomy



Psychedelic Jellyfish Caught on Video in Monterey Canyon
Jan 18, 2022 | Biology



New Multiverse Theory Explains Surprisingly Small Mass of Higgs Boson
Jan 18, 2022 | Physics



Curiosity's Samples from Martian Crater Strongly Depleted in Carbon-13, Researchers Say
Jan 18, 2022 | Planetary Science



DESI Creates Largest and Most Detailed Map of Universe Ever

“The name was given about two centuries ago because they looked like the disk of a planet when viewed through a small telescope.”

“In fact, a planetary nebula is formed after the interior of a star with about the mass of the Sun contracts and its outer layers expand and cool,” they said.

“In the case of the Sun, its outer layers could extend as far as the orbit of Venus during its red giant phase several billion years in the future.”

In addition to the hot gas, the researchers also found evidence for point-like X-ray source at the center of IC 4593.

This X-ray emission has higher energies than the bubble of hot gas.

The point source could be from the star that discarded its outer layers to form the planetary nebula or it could be from a possible companion star in this system.

“Deeper X-ray observations are needed to confirm the presence of an X-ray-emitting central star in IC 4593 and to characterize its nature,” the scientists said.

“Such measurements could easily be provided by future X-ray missions as Lynx and Athena.”

The [study](#) was published in the *Monthly Notices of the Royal Astronomical Society*.

J.A. Toalá *et al.* 2020. Chandra observations of the planetary nebula IC 4593. MNRAS 494 (3): 3784-3789; doi: 10.1093/mnras/staa1024



CHEOPS Spots Tidally Deformed Planet around WASP-103



NASA Releases Amazing New Photo of NGC 3318



Study: Human Brain Selectively Tunes to Unfamiliar Voices during Sleep

Jan 18, 2022 | [Neuroscience](#)



Computer Simulations Shed New Light on Gas Giant Formation

Jan 17, 2022 | [Astronomy](#)



DESI Creates Largest and Most Detailed Map of Universe Ever

Jan 17, 2022 | [Astronomy](#)



CHEOPS Spots Tidally Deformed Planet around WASP-103

Jan 17, 2022 | [Astronomy](#)



Marine Biologists Discover Enormous Breeding Colony of Icefish

Jan 17, 2022 | [Biology](#)



NASA Releases Amazing New Photo of NGC 3318

Jan 17, 2022 | [Astronomy](#)



Study: Destruction of Red Blood Cells Contributes to Anemia during Long-Duration Space Flights

Jan 14, 2022 | [Medicine](#)



Astronomers Find Exomoon Candidate around Jupiter-Sized Exoplanet Kepler-1708b

Jan 14, 2022 | [Astronomy](#)



Physicists Discover New Type of ‘Strange Metal’

Jan 14, 2022 | [Materials Science](#)

Share This Page

