



# Chandra Science Highlight

## NASA'S Chandra Opens Treasure Trove of Cosmic Delights



Caption: Each of these composite images contains X-ray data from Chandra and Hubble, and in some cases other telescopes, and shows a range of different astrophysical objects. Shown in the top row from left to right are the galaxy Messier 82, the galaxy cluster Abell 2744, the supernova remnant 1987A. In the bottom row from left to right are the binary star system Eta Carinae, the Cartwheel galaxy, and the planetary nebula Helix Nebula.

**Scales:** Image widths: **M82:** 12.8 arcmin (42,000 light years); **A2744:** 7 arcmin (6 million light years); **SN 1987A:** 20 arcsec (14 light years); **Eta Car:** 1.1 arcmin (2.4 light years); **Cartwheel:** 2.3 arcmin (270,000 light years); **Helix:** 22 arcmin (4.2 light years)

- A new montage of images showcases the combination of data from telescopes that collect different kinds of light.
- The "multiwavelength" approach to astronomy is crucial to getting a complete understanding of cosmic objects.
- NASA's Chandra X-ray Observatory provides the X-ray view of the objects in this collection.
- Two galaxies, a galaxy cluster, supernova remnant, double star system, and planetary nebula are represented.

### Distance estimates in light years:

**M82:** 11.4 million; **A2744:** 3.5 billion; **SN 1987A:** 168,000; **Eta Car:** 7,500; **Cartwheel:** 400 million; **Helix:** 650

**Credits:** **M82:** (X-ray: NASA/CXC; Optical: NASA/STScI); **A2744:** (X-ray: NASA/CXC; Optical: NASA/STScI); **SN 1987A:** (X-ray: NASA/CXC/SAO/PSU/K. Frank et al.; Optical: NASA/STScI); **Eta Carinae:** (X-ray: NASA/CXC; Ultraviolet/Optical: NASA/STScI; Combined Image: NASA/ESA/N. Smith (University of Arizona), J. Morse (BoldlyGo Institute) and A. Pagan); **Cartwheel Galaxy:** (X-ray: NASA/CXC; Optical: NASA/STScI); **Helix Nebula:** (X-ray: NASA/CXC; Ultraviolet: NASA/JPL-Caltech/SSC; Optical: NASA/STScI (M. Meixner)/ESA/NRAO (T.A. Rector); Infrared: NASA/JPL-Caltech/K. Su)

**Instruments:** All ACIS

**CXC Operated for NASA by the  
Smithsonian Astrophysical Observatory**



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