



Chandra X-ray
Observatory Center

Harvard-Smithsonian Center for Astrophysics
60 Garden St. Cambridge, MA 02138 USA
<http://chandra.harvard.edu>

Cosmic Fireworks: Supernova remnants in the Large Magellanic Cloud galaxy
160,000 light years from Earth.
(Credit: NASA/CXC/SAO)

Caption: Chandra's images show expanding shells of gas heated to millions of degrees by shock waves from supernova explosions. Moving in a clockwise direction from the upper left to the lower left, the approximate ages of the remnants are 600 years, 1,500 years, 10,000 years and 13,000 years, respectively. X-ray spectra indicate that the objects on the upper left, upper right and lower right are the remnants of Type Ia supernovas that completely disrupted a white dwarf star. In contrast, the remnant on the lower left was produced by a Type II supernova resulting from the gravitational collapse of a massive star. The explosion left behind a rapidly spinning neutron star that is ejecting a magnetized wind of extremely high-energy particles. This energetic wind appears in the image as the elongated, bright blue-white spot at the center of the remnant.

Scale:

Image of SNR 0519-69.0 is 1.85 arcmin per side.

Image of SNR 0509-68.7 is 2.4 arcmin per side.

Image of SNR 0453-68.5 is 8.7 arcmin per side.

Image of SNR 0534-69.9 is 8.8 arcmin per side.

Chandra X-ray Observatory ACIS Image

CXC operated for NASA by the Smithsonian Astrophysical Observatory