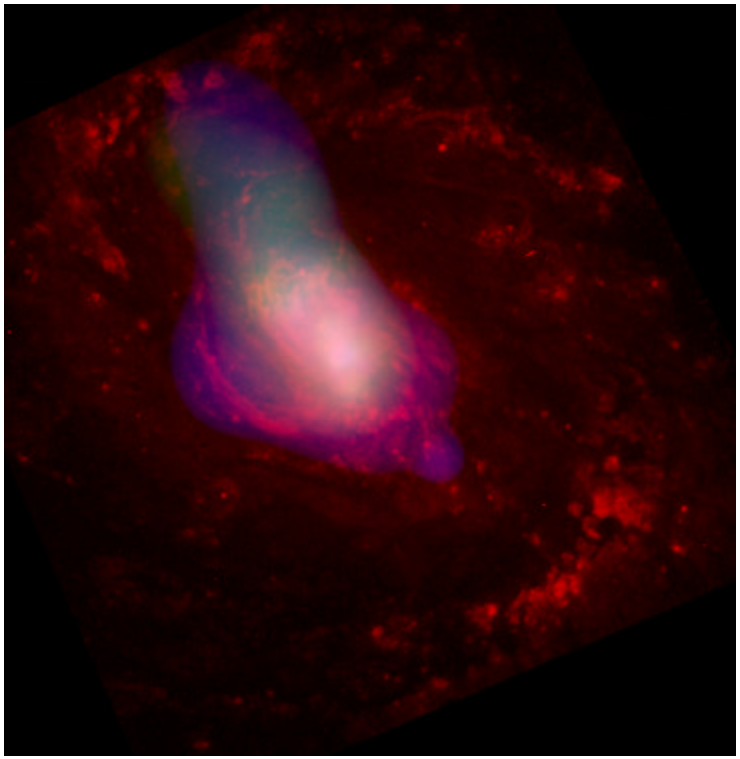
Chandra Science Highlight

NGC 1068: An active galaxy about 50 million light years from Earth.

Chandra X-ray Observatory ACIS/HETGS image.



This composite X-ray (blue and green) and optical (red) image of the active galaxy, NGC 1068, shows gas blowing away in a high-speed wind from the vicinity of a central supermassive black hole. Regions of intense star formation in the inner spiral arms of the galaxy are highlighted by both optical and X-ray emission.

- The elongated shape of the gas cloud is thought to be due to the funneling effect of a torus of cool gas and dust that surrounds the black hole.
- The use of the grating spectrometer on Chandra enabled astronomers to conclude that the X-rays observed from the torus are scattered and fluorescent X-rays produced by a hidden accretion disk around a supermassive black hole.
- X-ray spectra of the wind show that the composition of the material in the wind is roughly similar to that of the Sun's atmosphere, except for a deficit of oxygen atoms, and that it has a temperature of about 100,000 K. The average gas speed is about 500 km/s.

Reference: P. Ogle et al. 2003 Astronomy and Astrophysics, 402, 849

Credit: X-ray: NASA/CXC/UCSB/P. Ogle et al.;
Optical: NASA/STScI/A. Capetti et al.