



**Chandra X-ray
Observatory Center**

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M82X-2: A source with unusual pulsations in the M82 galaxy about 11.4 million light years from Earth.
(Credit: X-ray: NASA/CXC/Univ. of Toulouse/M.Bachetti et al, Optical: NOAO/AURA/NSF)

Caption: Ultraluminous X-ray Sources (ULXs) are objects that produce more X-rays than most "normal" X-ray binary systems, in which a star orbits a neutron star or a stellar-mass black hole. Astronomers used NuSTAR to detect regular variations, or "pulsations," in a ULX known as M82X-2, a source in the center of the M82 galaxy. With its excellent spatial resolution, Chandra was able isolate M82X-2 from another nearby ULX and rule out the contributions from other possible sources unresolved by NuSTAR. This composite image shows X-rays from NuSTAR (purple) and Chandra (blue) that have been combined with optical data from the NOAO 2.1 meter telescope (gold). The data from these two X-ray telescopes show that M82X-2 is not a black hole, but instead the brightest pulsar ever recorded.

Scale: Image is 10 arcmin (33,000 light years)

Chandra X-ray Observatory ACIS Image

CXC operated for NASA by the Smithsonian Astrophysical Observatory