



**Chandra X-ray  
Observatory Center**

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

**M33 X-7:** A binary system in the galaxy M33 where a black hole is in orbit around a large companion star.

(Credit: Illustration: NASA/CXC/M.Weiss; X-ray: NASA/CXC/CfAP.Plucinsky et al.; Optical: NASA/STScI/SDSU/J.Orosz et al.)

**Caption:** This artist's rendering shows a black hole in orbit with a large blue star. Material from the star is being pulled into a disk that revolves around the black hole at the center (orange disk). X-rays from Chandra and optical data from the Gemini telescope help determine that this black hole is almost 16 times the mass of the Sun. This is the highest mass ever determined for a black hole of this category. Data have also revealed that the companion star has an unusual size, containing about 70 times the Sun's mass. The inset shows a Chandra/HST composite image.

**Scale:** Inset Image is 30 arcsec across.

*Chandra X-ray Observatory ACIS Image*

*CXC operated for NASA by the Smithsonian Astrophysical Observatory*