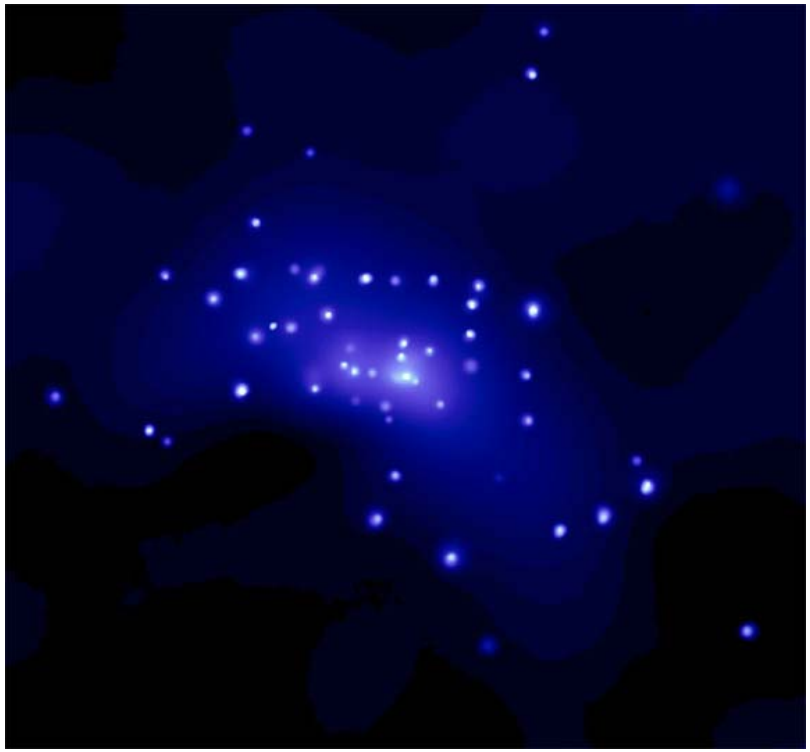
Chandra Science Highlights

NGC 4697: Black Holes in Elliptical Galaxy Point to Wild Youth



Chandra's image of the elliptical galaxy NGC 4697 reveals diffuse hot gas dotted with many point-like sources. The point-like sources are due to black holes and neutron stars in binary star systems. The origin of the hot gas cloud enveloping the galaxy is not known. One possibility is that the gas lost by winds from normal stars is heated by these winds and by supernova explosions.

Credit: NASA/CXC/UVa/C. Sarazin et al.

Chandra X-ray Observatory ACIS Image.

- Approximately 80 low-mass X-ray binaries (LMXBs) were detected in NGC 4697.
- The presence of this large population of neutron stars and black holes in this elliptical galaxy shows that it once contained many massive stars.
- About 20% of the LXMBs in the outer regions of NGC 4697 are associated with candidate globular clusters, indicating that many or all LXMBs may have been formed in globular clusters.
- The diffuse hot gas has a rather low temperature of 3 Million Kelvins.