



## Chandra X-Ray Observatory Center

Harvard-Smithsonian Center for Astrophysics  
60 Garden Street, Cambridge, MA 01238 USA  
<http://chandra.harvard.edu>

**M101:** A spiral galaxy about 20 million light years from Earth.

**Credit:** NASA/CXC/SAO/R.DiStefano et al.

This Chandra image of M101 shows numerous “quasisoft” X-ray sources (marked with green diamonds) that may represent a new class of objects. The quasisoft sources have temperatures in the range of one to four million degrees Celsius, significantly less than the ten to a hundred million degree gas associated with “hard” X-ray sources, such as neutron stars or stellar-mass black holes. The power output of quasisoft sources is comparable to or greater than that of neutron stars or stellar-mass black holes fueled by the infall of matter from companion stars. It is not known how quasisoft sources are produced; one possibility is that they are due to hot gas swirling around intermediate-mass black holes with masses a hundred or more times greater than the mass of the Sun.

**Scale:** Image is 14 arcmin on a side.

*Chandra X-ray Observatory ACIS Image*

*CXC operated for NASA by the Smithsonian Astrophysical Observatory*