



**Chandra X-Ray  
Observatory Center**

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**3C294:** A cluster of galaxies some 10 billion light years from Earth.  
**Credit:** NASA/IOA/A. Fabian et al.

Using Chandra, astronomers have found the most distant cluster of galaxies ever detected in X-rays. Approximately 10 billion light years from Earth, the cluster 3C294 is 40 percent farther than the next most distant X-ray galaxy cluster. Chandra's image reveals an hourglass-shaped region of X-ray emission extending outward for some 300,000 light years from the previously known central radio source. The dots indicate individual X-rays from this very distant source, and the colors indicate their energies, with red for low-energy X-rays, green for intermediate, and blue for the highest observed energies. Since galaxy clusters are the largest gravitationally bound structures in the universe, studying such distant clusters provides astronomers with a better understanding of the universe at a much younger age.

**Scale:** Image is 1.2 arcmin per side.  
*Chandra X-ray Observatory ACIS Image*

*CXC operated for NASA by the Smithsonian Astrophysical Observatory*