



**Chandra X-ray  
Observatory Center**

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**MACS J0416.1-2403 and MACS J0717.5+3745:** Two galaxy clusters located about 4.3 billion and 5.4 billion light years away respectively.

(Credit: X-ray: NASA/CXC/SAO/G.Ogrea et al.; Optical: NASA/STScI; Radio: NRAO/AUI/NSF)

**Caption:** These two galaxy clusters are part of the "Frontier Fields" project, which uses some of the world's most powerful telescopes to study these giant structures with long observations. Galaxy clusters are enormous collections of hundreds or thousands of galaxies and vast reservoirs of hot gas embedded in massive clouds of dark matter. These images contain X-ray data from Chandra (blue), optical light from Hubble (red, green, and blue), and radio data from the Very Large Array (pink).

**Scale:** MACS J0416.1-2403 Image is 3.4 arcmin across (About 3.6 million light years); MACS J0717.5+3745 image is 5.4 arcmin across (About 6.8 million light years)

*Chandra X-ray Observatory ACIS Images*

*CXC operated for NASA by the Smithsonian Astrophysical Observatory*

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