



**Chandra X-ray  
Observatory Center**

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**Bullet Cluster:** A collision of two large clusters of galaxies about 3.8 billion light years away.  
(Credit: X-ray: NASA/CXC/CfA/M.Markevitch et al.; Optical: NASA/STScI; Magellan/U.Arizona/D.Clowe et al.)

**Caption:** This view of the Bullet Cluster is a combination of X-rays from Chandra (red) and optical data from the Hubble and Magellan telescope (yellow). If some of the gas in the Bullet Cluster has particles of antimatter, they would annihilate with matter and possibly could be detected. However, the observed amounts of X-rays and the non-detection of gamma rays show that fraction of antimatter in the Bullet Cluster is less than three parts per million.

**Scale:** Image is 6.7 arcmin across.

*Chandra X-ray Observatory ACIS Image*

*CXC operated for NASA by the Smithsonian Astrophysical Observatory*

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