



Chandra X-ray  
Observatory Center

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1E 0657-56: Site of a collision between two large galaxy clusters about 3.4 billion light years from Earth.

(Credit: X-ray: NASA/CXC/CfA/M.Markevitch et al.; Optical: NASA/STScI; Magellan/U.Arizona/D.Clowe et al.; Lensing Map: NASA/STScI; ESO WFI; Magellan/U.Arizona/D.Clowe et al.)

Caption: This composite image shows the galaxy cluster 1E 0657-56, also known as the "bullet cluster", formed after the collision of two large clusters of galaxies. Hot gas detected by Chandra is seen as two pink clumps in the image and contains most of the "normal" matter in the two clusters. An optical image from Magellan and the Hubble Space Telescope shows galaxies in orange and white. The blue clumps show where most of the mass in the clusters is found, using a technique known as gravitational lensing. Most of the matter in the clusters (blue) is clearly separate from the normal matter (pink), giving direct evidence that nearly all of the matter in the clusters is dark. This result cannot be explained by modifying the laws of gravity.

Scale: Image is 7.5 x 5.4 arcmin.

Chandra X-ray Observatory ACIS Image

CXC operated for NASA by the Smithsonian Astrophysical Observatory