



**Chandra X-ray  
Observatory Center**

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**Perseus Cluster:** A giant collection of galaxies immersed in hot gas about 250 million light years from Earth.  
(Credit: X-ray: NASA/CXC/SAO/E.Bulbul, et al.)

**Caption:** A new study of the Perseus galaxy cluster, shown in this image, and others using Chandra and XMM-Newton has revealed a mysterious X-ray signal in the data. This signal is represented in the circled data points in the inset, which is a plot of X-ray intensity as a function of X-ray energy. The signal is also seen in over 70 other galaxy clusters using XMM-Newton. This unidentified X-ray emission line - a spike of intensity centered on about 3.56 kiloelectron volts - requires further investigation to confirm both the signal's existence and nature. One possibility is this signal is from the decay of sterile neutrinos, one proposed candidate to explain dark matter.

**Scale:** Image is 11 arcmin (about 768,000 light years)

*Chandra X-ray Observatory ACIS Image*

*CXC operated for NASA by the Smithsonian Astrophysical Observatory*