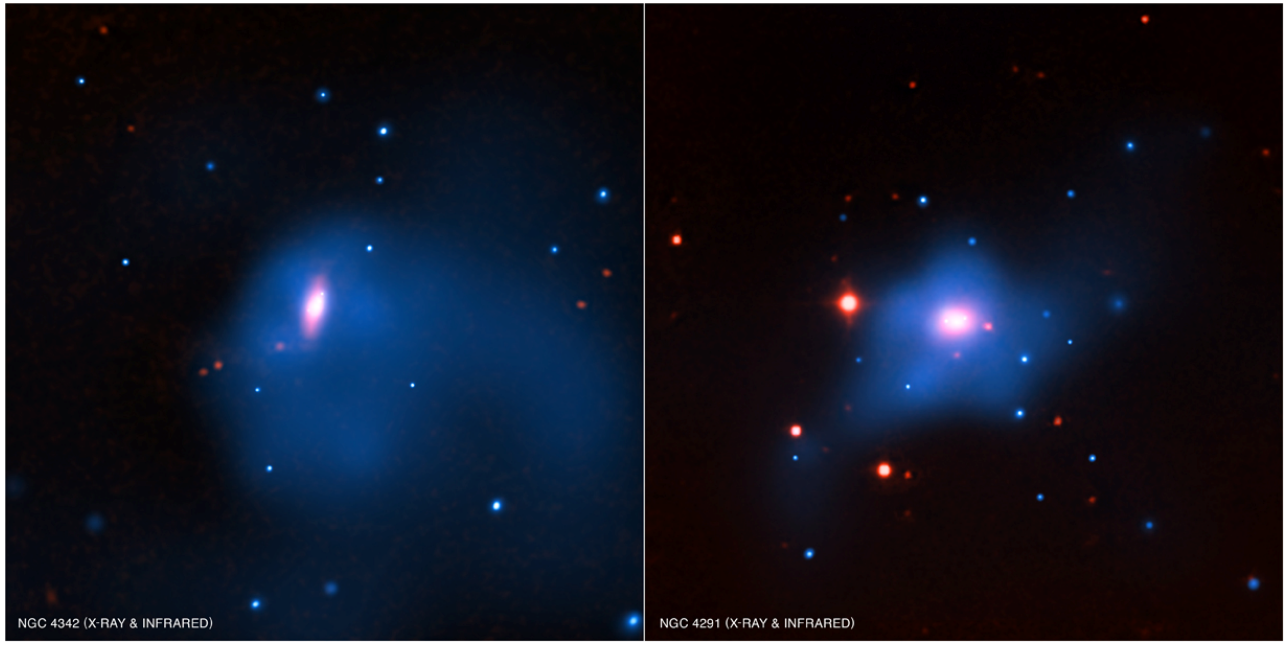
Chandra Science Highlight

NGC 4342 and NGC 4291: Black Hole Growth Found to be Out of Synch

Chandra ACIS Image



In these composite images, X-rays from NASA's Chandra X-ray Observatory are colored blue, while infrared data from the 2MASS project are seen in red.

Reference: Bogdan, A et al. 2012, arXiv:1203.1641

Credit: X-ray: NASA/CXC/SAO/ A.Bogdan et al;
Infrared: 2MASS/UMass/IPAC-Caltech/NASA/NSF

Distance Estimate: About 75 million light years (NGC4342) and 85 million light years (NGC4291)

* The observed ratios of the masses of the supermassive black holes, $M_{BH,}$ to the masses of the central bulges of stars, M_{bulge} for NGC 4342 and NGC 4291 are 5.1 sigma and 3.4 sigma outliers from the mean $M_{BH} - M_{bulge}$ relation.

* Chandra X-ray observations of the hot gas content of the galaxies indicate that both galaxies reside in massive dark matter halos.

* The presence of dark halos, along with optical data, suggests that the bulge stars were not lost in a collision with another galaxy.

* This is evidence that the black hole and the bulge did not grow in tandem, that black hole growth preceded that of the stellar bulge.