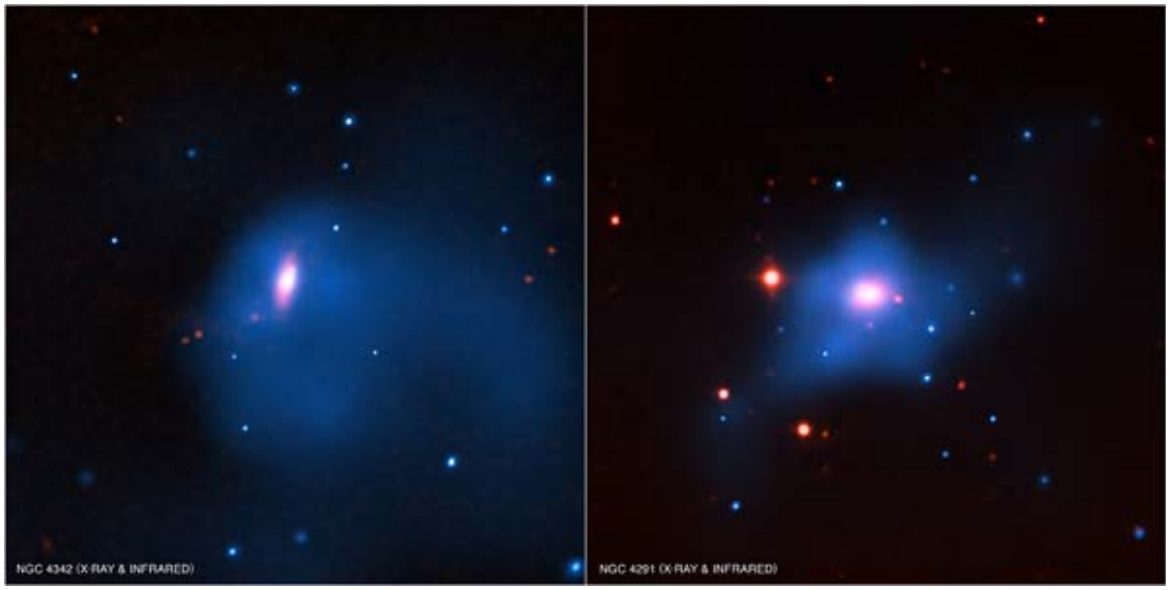

Chandra X-ray Observatory Center

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NGC 4342 & NGC 4291: Two galaxies, located about 75 million and 85 million light years away respectively, with unusually large central black holes.
(Credit: X-ray: NASA/CXC/SAO/A.Bogdan et al; Infrared: 2MASS/UMass/IPAC-Caltech/NASA/NSF)

Caption: Two objects that challenge the prevailing idea of how supermassive black holes grow in the centers of galaxies are shown here. In these composite images, X-rays from Chandra (blue) have been combined with infrared data from 2MASS (red). Both of the black holes at the centers of these galaxies have much larger masses than expected when compared to the galaxies' central bulges of stars. The Chandra data revealed the presence of massive envelopes of dark matter around each galaxy. The new study suggests that the growth of the black holes is closely tied to the amount and distribution of the dark matter in each galaxy, rather than the mass of stars contained in their bulges as previously thought.

Scale: NGC 4342, 6 arcmin across, NGC 4291, 8.4 arcmin across.

Chandra X-ray Observatory ACIS Image

CXC operated for NASA by the Smithsonian Astrophysical Observato