Multiple images of a distant quasar are visible in this combined view from NASA's Chandra X-ray Observatory (pink) and the Hubble Space Telescope (red, green and blue).

- Gravitational lensing by an intervening galaxy has created four different, magnified images of the quasar, which is powered by a supermassive black hole accreting matter.
- The combined Chandra spectra enabled detection of X-rays coming from the inner region of the black hole's accretion disk, only about 3 times the radius of the black hole's event horizon.
- The X-ray spectra indicate that space-time at the black hole's event horizon is spinning extremely rapidly, corresponding to a rotation speed greater than half the speed of light.
- The rapid spin indicates that the black hole has grown through major mergers of galaxies, rather than through many small accretion episodes.


Credit: X-ray: NASA/CXC/Univ of Michigan/R.C.Reis et al; Optical: NASA/STScI

Instrument: Chandra ACIS Observation

CXC Operated for NASA by the Smithsonian Astrophysical Observatory

Scale: Image is 1.2 arcmin on a side (about 1.6 million light years).

Distance Estimate: 6 billion light years (red shift z = 0.658)