



**Chandra X-Ray
Observatory Center**

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RXJ 0911.4+0551: A gravitationally lensed distant quasar.
Credit: NASA/Penn State/G.Chartas et al.

Chandra's high resolution image reveals a four-way mirage image (A1, A2, A3 and B) of a quasar known as RXJ 0911.4+0551. Quasars are extremely distant galaxies with luminous cores thought to be powered by supermassive black holes. A single "point source" image of a quasar may appear as a mirage of images when the gravity of an intervening massive galaxy forces light rays to bend and take different paths to reach us. These variations in the quasar – which are much more rapid at X-ray than at optical wavelengths – show up at different times in the mirage. With future observations, it may be possible to measure the time lag in the variations from one image to the next and estimate the difference in distance traveled. This information could then be used to estimate the distance to the quasar and the expansion rate of the universe.