

# RXS J1131-1231: a lensed host galaxy at $z = 0.66^*$

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**Abstract:** A spectacular, high angular resolution, multicolor image of the complex gravitational lens system RXS J1131-1231 (a quadruply imaged AGN with a bright Einstein ring discovered by Sluse et al. 2003) is constructed from data obtained with the Advanced Camera for Surveys and NICMOS instrument onboard the Hubble Space Telescope (HST). Besides the nearly complete ( $\sim 305^\circ$ ) Einstein ring (also seen in the visible), thin and relatively blue arcs are identified, as well as a faint X companion (see Fig. 1).

These HST frames are carefully analysed to disentangle the flux coming from the lensed AGN point-like images, from the lens and from the Einstein ring. A simple Singular Isothermal Ellipsoid plus external shear provides a good fit of the astrometry of the AGN point-like images A-D. The lens ( $z = 0.295$ ) is found to be a massive elliptical showing little evolution with respect to  $z = 0$ . The *non parametric* light distribution of the host galaxy ( $z = 0.658$ ) is retrieved using a back ray-tracing technique. The host is found to be a substantially magnified ( $M \sim 9$ ) luminous Seyfert 1 spiral galaxy. The achieved angular resolution is sufficient to identify regions where stars are intensively forming. Interaction with a closeby companion is also observed.

Details on the image analysis, on the lens modeling and on the host image reconstruction as well as more quantitative results can be found in Claeskens et al. (2005). A discussion of the point-like image flux ratios and of their temporal and chromatic variability is reported in Sluse et al (2005).

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## RXS J1131–1231

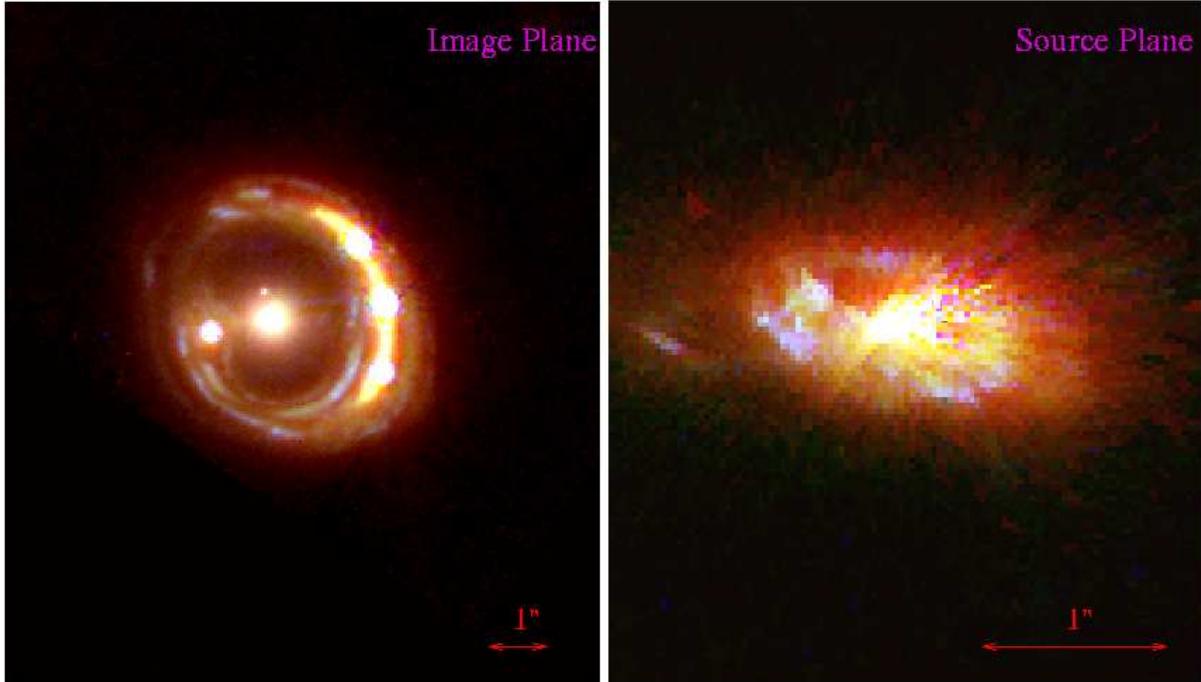


Figure 1: *Left:* pseudo color image of the gravitational lens system RXS J1131-1231; *right:* pseudo color image of the reconstructed host galaxy; combination of ACS F555W (blue), ACS F814W (green) and NICMOS2 (red) images.

## References

- Claeskens, J.-F., Sluse, D., Riaud, P. Surdej, J., 2005, A&A, submitted  
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