

EXTENDED UV EMISSION IN NGC6251

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1. Introduction

NGC 6251 is an optically normal elliptical galaxy that hosts one of the most spectacular radio jets (Perley, Bridle, and Willis, 1984). This jet extends about 1 Mpc and its axis is roughly perpendicular to the central dust ring. NGC6251 was originally observed with HST in a survey of elliptical galaxies (Crane *et al.*, 1993) and revealed an anomaly which was pursued in the investigation reported here.

Hubble Space Telescope Images of the nucleus of the galaxy NGC6251 have been obtained with FOC F/96 camera at 3 different blue and UV filters. Images with the PC2 camera at 2 wavelengths have been extracted from the HST archives. The PC images reveal a 500 pc diameter warped dust ring surrounding the nucleus of NGC 6251. However, the FOC images reveal a bright extension to the nucleus apparently filling the interior of the dust ring, and which is seen best at wavelengths shortward of $\lambda \lesssim 4000$ Å. (See figure 1).

Our previous report (Crane and Vernet, 1997) on this discovery did not include the image at 2200 Å which is seen in the upper left hand corner of Fig. 1. This new image clearly supports our previous assertion that this emission is most likely scattered radiation which originates at or near the true nucleus.

2. Discussion

We have no definitive explanation for these observations. Nevertheless, several lines of reasoning have led us to favor the interpretation of the radiation as being scattered even though our polarization images do not show substantial polarization. (See Crane and Vernet (1997) for details.)

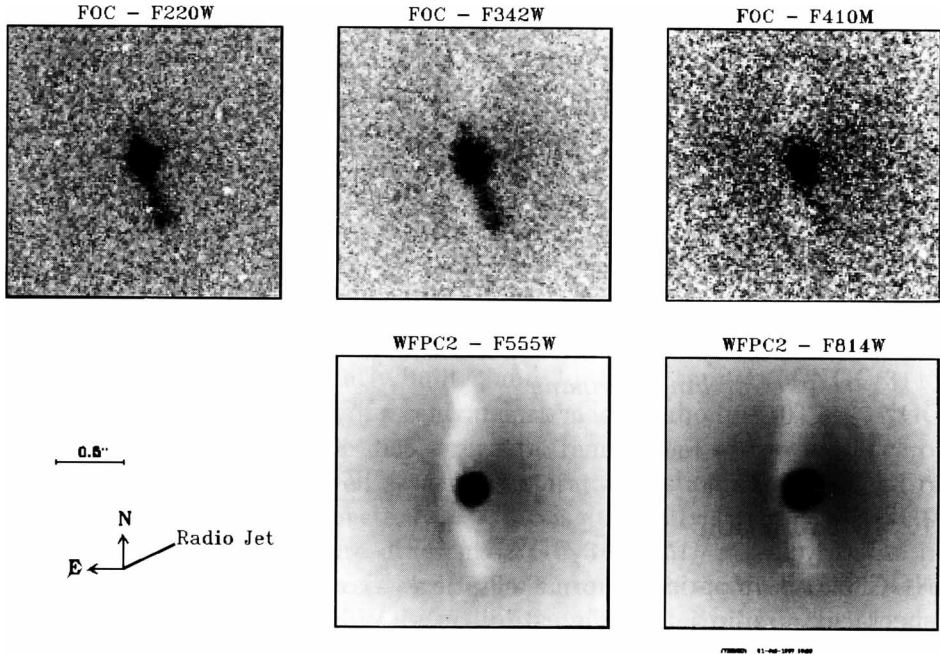


Figure 1. HST Images of the central few arcseconds of NGC 6251. The HST filters used for each image are indicated. The wavelengths progresses from 2200 Å in the upper left to 8000 Å in the lower right. The orientation and scale are indicated in the lower left panel. The arrow indicates the direction of the radio jet.

The canonical models of the close regions of galactic nuclei usually propose an optically thick torus in the inner parsec or so. This torus presumably prevents our view of the interior regions except for a restricted range of viewing angles. However, recently Blackman and Yi(1996) have proposed that this torus may be suppressed or even absent in sources with very powerful radio sources. We suggest that this may be the case for NGC 6251.

References

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 Perley, R.A., Bridle, A.H., and Willis, A.G., (1984) *Ap.J.S.*, 54, 291.