

THE NATURE OF THE DUSTY IONIZED GAS IN NGC 5846

(and other elliptical galaxies ?)

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We present new optical imagery and *ROSAT* HRI X-ray imagery of the elliptical galaxy NGC 5846. A filamentary dust lane is detected in its central region, with a morphology strikingly similar to that observed for the optical nebulosity *and* the X-ray emission (cf. Fig. 1). A physical connection between the different phases of the interstellar medium therefore seems likely. The energy deposited from the hot gas into heating of the dust grains is consistent with the temperature distribution of the X-ray-emitting gas, which is found to be lowest in the dusty regions. The optical extinction of the dust is consistent with the Galactic extinction curve. We argue that the dust as well as the optical nebulosity are products of an interaction with a small, gas-rich galaxy, *not* remnants of a cooling flow. A full account of this work is currently in press in *Astronomy and Astrophysics*, and a preprint is available through <http://www.stsci.edu/science/preprints/prep1191/prep1191.html>.

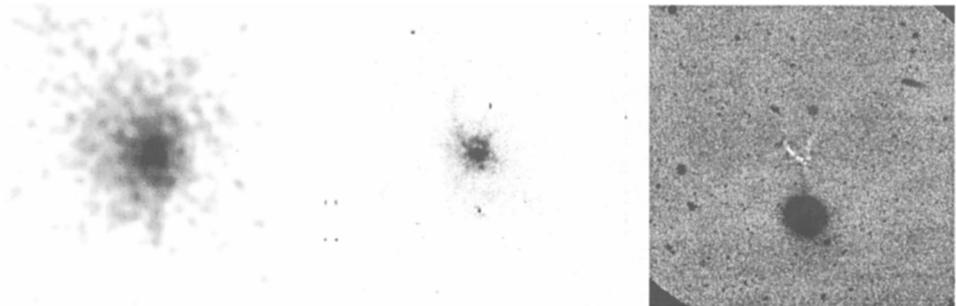


Figure 1. Grey-scale reproductions of the distributions of X-ray emission [using *ROSAT* HRI data] (left), $H\alpha + [N\ II]$ emission (middle), and A_V of dust extinction in the central 200×200 arcsec of NGC 5846. North is up and east is to the left.

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