

LOCAL AND GLOBAL OPTICAL, FAR-INFRARED (FIR) AND
X-RAY PROPERTIES OF THE FIR QUIESCENT SC GALAXY
NGC 247

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We present an Optical, FIR and X-ray study of the low L_{FIR} Sc galaxy, NGC 247. Global correlations (ie. B or X vs. Radio or FIR) in late-type spirals suggest that some luminosities do not scale linearly. We describe first results of a program to study emission in late-type spirals on local (kpc) scales to investigate this non-linear behaviour. Our data includes B, I, $H\alpha+[NII]$ CCD, IRAS 60, $100\mu m$ (Rice 1993), and ROSAT PSPC, (0.1-2.4keV) images. Since abstract submission we have added H I (Carignan and Puche 1990) and 1.49 GHz continuum (Condon 1987). The $H\alpha+[NII]$ is generally coextensive with the IRAS emission and H I. The brightest $H\alpha+[NII]$ region ($\log L_{H\alpha} \sim 38.6$ ergs s^{-1}) in a region of low FIR flux, may possess a locally warm 60/ $100\mu m$ ratio suggesting a similarity with more luminous galaxies that have warm 60/ $100\mu m$ ratios globally. 1.49 GHz sources are not cospatial with bright X-ray sources, nor with $H\alpha+[NII]$. Three extended 1.49 GHz sources are cospatial with very faint, soft X-ray emission, suggesting a SNR origin. We cannot rule out a *direct* 1.49 GHz/X-ray or 1.49 GHz/ H II origin due to relativistic e^{-} propagation. ROSAT PSPC results suggest 4 4σ (0.1-2.4 keV) X-ray sources are intrinsic. Their L_X range of 10^{36-37} ergs s^{-1} is consistent with X-ray binaries, whilst the total $L_X = 3.0 \times 10^{37}$ ergs s^{-1} is **underluminous** by ~ 3 , compared to previous regression fits. A faint soft, $L_X \sim 1 \times 10^{36}$ ergs s^{-1} nuclear X-ray feature may be a SNR outflow, and similar to plumes/outflows seen in *starbursts*, but 10^4 less luminous.