

SPATIAL DISTRIBUTION OF FAR INFRARED AND RADIO CONTINUUM EMISSION IN SPIRAL GALAXIES

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A study of 8 nearby spiral galaxies (NGC 2903, 3079, 3198, 3628, 4303, 4321, 4656 and 6946) is carried out using the radio continuum (RC) and far infrared (FIR) images at 1' resolution. These images are used to study the radial gradients in the ratios of FIR to RC (Q_{60} and Q_{100}), warm dust temperature ($T_d(60/100)$) *etc.* The main results are illustrated with NGC 2903 as an example in Fig. 1, where azimuthally averaged quantities are plotted. $T_d(60/100)$ decreases away from the center (45–25 K), increasing again by ~ 5 K in outer galaxies. Typically Q_{60} decreases by a factor of three away from the center in a given galaxy, but has an order of magnitude spread in the pixel values over all the galaxies. In contrast, Q_{100} shows flatter gradient, which is expected from the observed temperature gradient. 20 cm RC emission profile is also shown in Fig. 1. The RC and FIR profiles can be fitted by a combination of central gaussian and exponential disk components. In general RC and FIR have about the same fraction of exponential component with the exception of NGC 3628, in which the FIR is dominated by the gaussian while the RC is mostly disk component (see Fig. 2). In 5 of the remaining 7 galaxies, the exponential component contributes $> 50\%$ of the total. In general RC scale lengths are larger than the FIR.

