ULTRAVIOLET STUDIES OF THE FACE-ON GALAXY NGC 2217

A. DANKS

ST Systems Corporation, Lanham, MD 20706, USA

M. PÉREZ

CSC/IUE Observatory, NASA-GSFC, Greenbelt, MD 20771, USA

and

B. ALTNER

CSC/GHRS, NASA-GSFC, Greenbelt, MD 20771, USA

Abstract. Recently a subgroup of S0 galaxies has been identified with external gas rotating in retrograde motion with respect to the stars (e.g. NGC 1216, NGC 4546 and NGC 7007). All of these galaxies are seen almost *edge-on* and present an excellent testing ground for studying the connection between the stellar formation and the counterrotating (non-primordial) gas. Recently, the almost *face-on* and gas-rich SB0 galaxy NGC 2217 was added to this list (Bettoni et al. 1990, AJ, 99, 1789), which presents a more favorable orientation for spectroscopic studies to determine its stellar population. We present three IUE long-wavelength region (LWP) observations of NGC 2217 taken at different orientations of the aperture centered on the galaxy nucleus. We have taken full advantage of the IUE spatial resolution capability to map the nuclear and bulge region. In addition, our multicolor CCD imagery obtained at CTIO allows us to identify some faint, but spatially resolved, dust extinction patterns which correlate with the weak IRAS fluxes.

1. Observations and Results

From CCD images of the disk galaxy (SB0) NGC 2217 we can identify a bright, nearly-circular nucleus of about 5 arcsec in diameter (for a distance of 14.9 Mpc, this corresponds to 400 pc), surrounded by an extended dusty region. Observations of this region were carried out using IUE in the long-wavelength camera (LWP), low-dispersion mode, through an oval aperture $10\times 20.''$ These images were analyzed by using the extended line-by-line (LBL) files which contain the spatial information. The width of the nuclear region corresponds to a Gaussian with the FWHM equal to the IUE point spread function; i.e., the nucleus appears as a point source. Our method separates the spectra of the central point-like source from the underlying extended component. The fluxes were corrected for extinction, however, we found that the central and extended components required different reddening corrections; the nucleus requiring $A_V=0.29$, and the extended region, $A_V=0.53$.

The data point to a marginally earlier stellar population around the central region. The UV light as a whole is dominated by a late-type stellar population of principally G and K stars. The almost *face-on* view of this galaxy appears optically thick to UV light. It is conceivable that with analogy to our own Galaxy, the stellar populations weakly detected in NGC 2217, are mostly halo and late-type stars in the center with and increasing contribution of dust and early stellar populations (so far undetected) as we move outward along the faint spiral arms. This result is contrary to our initial expectation, since the counterrotating gas does not appear to be enhancing star formation in this galaxy. The IRAS fluxes imply the presence of cool gas and whether any star formation is taking place is clearly insufficient to heat the observed dust.