

THE ANISOTROPIC RADIATION FIELD IN NGC 3516

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We present new narrow-band images of the Extended Emission-Line Region (EELR) in NGC 3516 in light of [O III] λ 4959, H α + [N II] $\lambda\lambda$ 6548, 84, [O I] λ 6364, He I λ 6678 and [Fe VII] + [Ca V] λ 6087. The observations were carried with the 2-m reflector of the Bulgarian National Astronomical Observatory and the Focal Reducer of the Max-Planck-Institut for Aeronomy. Our [O III] and H α + [N II] images confirm previously reported EELR features. In contrast, the image in the high-excitation [Fe VII] + [Ca V] line shows a different structure. We identify a biconical morphology over a kiloparsec scale with peak intensities 5.9×10^{-16} ergs cm $^{-2}$ s $^{-1}$ arcsec $^{-2}$ and 3.5×10^{-16} ergs cm $^{-2}$ s $^{-1}$ arcsec $^{-2}$ to north and south of the nucleus, respectively. The total flux of the [Fe VII] + [Ca V] emission in 5'' and 24'' circular apertures centered at the nucleus is $(9.97 \pm 0.38) \times 10^{-14}$ ergs cm $^{-2}$ s $^{-1}$ and $(1.53 \pm 0.15) \times 10^{-13}$ ergs cm $^{-2}$ s $^{-1}$, respectively, which is in good agreement with measurements of Boksenberg & Netzer (1977) through the 5'' aperture. The cone axis lies at PA $\sim -10^\circ$. The continuum images (Veilleux *et al.*, 1993, Miyaji *et al.*, 1992) indicate a "bar" aligned along PA $\sim -10^\circ$. The velocity extrema regions revealed by Veilleux *et al.* (1993) are coincident with the peak intensities in our [Fe VII] + [Ca V]. We suppose that our image in [Fe VII] + [Ca V] outlines a Coronal-Line Region (CLR) of NGC 3516, which extends far beyond the classical NLR of the galaxy. Korista & Ferland (1989) have recently shown theoretically that the CLR in Seyferts may be a result of a low-density interstellar medium exposed to and photoionized by a "bare" active nucleus. A typical ISM with $N_e \sim 1-5$ cm $^{-3}$ may produce such an extended CLR as that observed by us.

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