

A UNIFIED VIEW OF NGC 4151

HARTMUT SCHULZ

*Radioastronomisches Institut, Universität Bonn, Auf dem Hügel 71, D-53121 Bonn
and Astronomisches Institut, Ruhr-Universität, D-44780 Bochum*

Abstract. Using crude constraints from recent HST images, we fit the emission-line spectra of the NLR and VNLr of NGC 4151 with photoionization models. There is no need for an *intrinsic* anisotropy of the distribution of the ionizing flux.

1. Introduction

NGC 4151 is the first Seyfert galaxy in which a 30° wide UV radiation cone was invoked to explain the ionization of the VNLr (very-narrow line region; 5'' to 20'' SW of the nucleus; Schulz 1988). A NE counterpart (60° wide cone) together with a bipolar NE-SW outflow structure was suggested by Schulz (1990). Recent HST images in [OIII] and H α light (Boksenberg 1992; Evans et al. 1993) corroborate the geometry predicted from ground-based data by showing an inner bicone ($\pm 2^\circ$) and reveal striking details on the morphology of the emission-line cloud aggregates.

2. Results

The VNLr spectrum can be well represented by a single cloud of fixed density photoionized by a bright and most probably anisotropic continuum that has a 230000 K black-body spectrum in the EUV bump. An alternative fit involving multidensity clouds is consistent with an intrinsically isotropic continuum (Schulz & Komossa 1993). The HST constrained model of the NLR bicone favors the latter continuum model, a mixture of densities ($\log n = 3$ to 4), and a γ -break at least at 9.9 MeV.

3. Acknowledgements

This work was supported by DARA grant 50 OR 9102.

References

- Boksenberg A., 1992, ESO Conf. Proc. 44, p.61
- Evans I.N. et al., 1993, ApJ., in press
- Ferland G., 1993, Univ. Ky. Dep. Phys. & Astron. Int. Report
- Schulz H., 1988, A&A, 203, 233
- Schulz H., 1990, AJ, 99, 1442
- Schulz H., Komossa S., 1993, A&A, in press