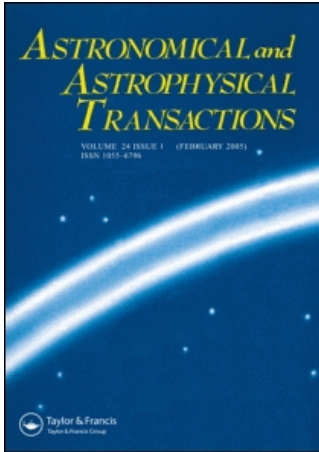


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Long-slit spectra of the peculiar galaxy NGC 7468

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LONG-SLIT SPECTRA OF THE PECULIAR GALAXY NGC 7468

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Some results of a spectral study of the peculiar galaxy NGC 7468 are reported. The existence of the near-polar gas disc (or ring) in the central region is revealed.

Keywords: Peculiar galaxies; Kinematics

1 INTRODUCTION

NGC 7468 is a peculiar galaxy with a blue core resolved on three condensations and with a dwarf satellite. The photometric study shows that the galaxy belongs to the late type (Sm and Im) (Evstigneeva, 2000). It has an H II-region-like emission spectrum (Hunter *et al.*, 1986). The galaxy is gas rich and has an extensive H I halo (Taylor *et al.*, 1994). It was included in the Catalogue of Polar Ring Galaxies (Whitmore *et al.*, 1990) as a possible candidate. We present preliminary results of our spectral study of NGC 7468.

2 OBSERVATIONS AND RESULTS

The observations were carried out at the prime focus of the 6m telescope of the Special Astronomical Observatory of the Russian Academy of Sciences with a long-slit spectrograph (UAGS) for five different positions of the slit. Line-of-sight velocities are determined using the strongest emission lines (H α , [N II] and [S II]). The velocity errors are no more than 10 km s⁻¹. The radial velocity values obtained by different lines are similar.

More interesting line-of-sight velocity curves (PAs of 5° and 105° corresponding to the major and minor axes) are presented in Figure 1. The line-of-sight velocity curve (with a PA of 5°) extends to 30'' from the centre and has a linear part within $|R| \leq 15''$ except for the central region (approximately 7'') where it is flat. For another slit angle (with a PA of 105°) the radial velocity curve also has a linear part ($|R| \leq 3''$). These facts indicate solid-body rotation and the existence of a nuclear gas subsystem with the rotation plane nearly

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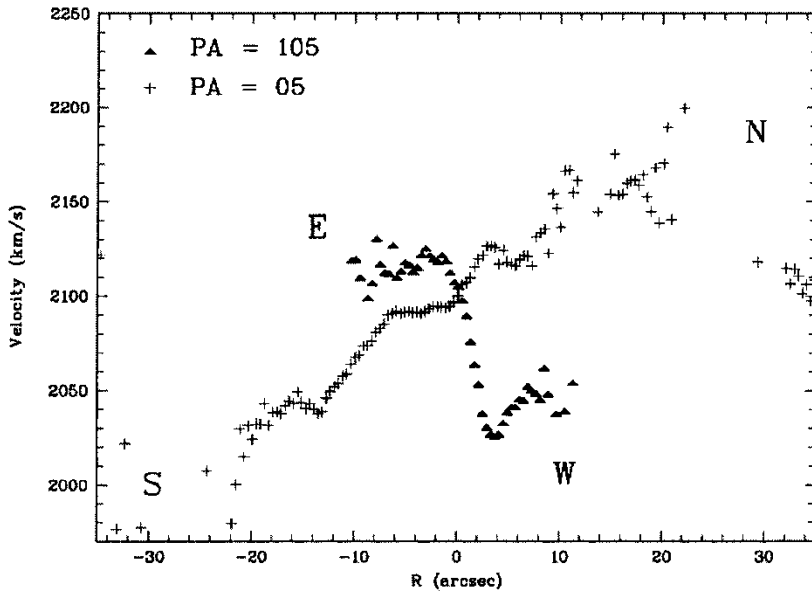


FIGURE 1 Hz radial distribution of the line-of-sight velocity. The zero point corresponds to the photometric centre ($1'' = 150$ pc; $H_0 = 75$ km s $^{-1}$ Mpc $^{-1}$).

orthogonal to the main galactic disc. The same gaseous nuclear subsystems were discovered in some other spiral galaxies (Sil'chenko *et al.*, 1999).

We construct the azimuthal dependences of the line-of-sight velocity at distances of $2''$, $3''$ and $4''$ from the centre. The results are quite well approximated by a cosine law (evidence of circular rotation). The fitting procedure was carried out for the dynamic axis position PA of about 60° and $V_{\text{sys}}^{\text{hel}} = 2090$ km s $^{-1}$. The exact position of this axis will be determined only after the total velocity field is constructed.

3 CONCLUSIONS

According to the features of radial velocity curves and the fitting results of azimuthal dependences of line-of-sight velocity we suspect the existence of two almost orthogonal gaseous subsystem: an 'inner' gas polar disc (or ring) and a gas disc of the galaxy. The results are preliminary and require more detailed analysis.

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