SPECTROPHOTOMETRY OF 3C 232 AND 3C 249.1

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ABSTRACT. We find indication of variability of the ratio Mg II 2934/2798 for 3C 232 and discuss the excitation mechanism of Mg II 2934. For 3C 249.1 we identified the following new lines: [Ne V] 3346, [Ne V] 3426 and He I 3884. Comments are made on continuum shapes; in both cases optical continuum variability is confirmed.

1. OBSERVATIONS

The observations were carried out in March 1982 with the 2.1 m telescope of the OAN, San Pedro Mártir, B. C. (México), using a low dispersion spectrograph coupled with the Optical Multichannel Analyzer described by Firmani and Ruíz (1981).

2. EMISSION LINE SPECTRA

2.1 TON 469 (3C 232)

TABLE 1

Line	λ_{rest} (Å)	I_{obs} (x 10^{-14}) (erg cm^{-2}s^{-1})	W_{obs} (Å)
MG II	2798	23 ± 5.0	148 ± 26
MG II	2932	13 ± 3.0	119 ± 15
[O II]	3727	5 ± 0.1	70 ± 1

Grandi and Phillips (1978) have suggested two possible fluorescence mechanisms for the excitation of Mg II λλ2929, 2936: Lyβ an N V Fluorescence. Several observational predictions have not been confirmed for the case of Lyβ fluorescence: the presence of M̄ḡ II λ1752 and λ1737

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with a strength comparable to λ2798 and also the presence of OI λ1302.
(See Dultzin-Hacyan, Salas and Daltabuit, 1982).

Our observed ratio Mg II 2934/2798 (see Table 1) is 0.56±.20, a factor
of two higher than that observed by Grandi and Phillips (1978). If this
ratio is varying with time, simultaneous UV and optical observations
are needed to establish whether N V fluorescence is responsible for the
excitation of Mg II λ2934 (Dultzin-Hacyan, 1985).

2.2   3C 249.1

TABLE 2

Line	λ_{rest} (Å)	I_{obs} (x 10^{-14}) erg cm^{-2} s^{-1}	W_{obs} (Å)
[Ne V]	3346	0.9 ± 0.20	5 ± 1.0
[Ne V]	3426	1.1 ± 0.20	6 ± 1.0
[O II]	3727	2.7 ± 0.90	16 ± 5.0
[Ne III]	3869	2.2 ± 0.30	13 ± 2.0
He I + H$_8$	3889	1.8 ± 0.40	12 ± 2.0
[Ne III] + H$_7$	3967	1.2 ± 0.08	8 ± 0.5

3.   CONTINUUM

With these two cases we have an example of locally different continuum
energy distribution shapes, in the sense that 3C 232 shows the typical
optical flat spectrum and the UV is much steeper, whereas for 3C 249.1
the UV (corrected for galactic reddening) is an extrapolation of the
optical continuum (Dultzin-Hacyan, 1985). For both quasars, previous
data on variability are confirmed.

REFERENCES
Dultzin-Hacyan, D., Salas, L. and Daltabuit, E., 1982, Astr. and Ap.,
   111, 43.
Dultzin-Hacyan, D., 1985, Rev. Mex. Astron. y Astrof., 11, in press.
Firmani, C. and Ruíz, E., 1981, Recent Advances in Observational Astro-
   nomy, eds.: H. L. Johnson and C. Allen (México: UNAM), p. 25.
Grandi, S. A. and Phillips, M. N., 1978, Ap. J., 220, 426.