SPECTROPHOTOMETRY OF SELECTED AGN.
SEYFERT GALAXY AKN 564

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Akn 564 (α_{1950} = $22^h40^m18.3^s$, δ_{1950} = $29^o27'47''$) is a Sy1.5G SBb type galaxy. According to Zwicky (1966) it has a photographic magnitude m_p = 14.4 and a redshift of 0.025.
The spectra of the galaxy were obtained at the 2.6-m telescope of the Crimean Astrophysical Observatory with a spectrograph having a dispersion of 100 A.mm^{-1} . They were processed with the help of SPEC and LONG packages integrated in MIDAS.
As a result of the spectrophotometry we obtain the fluxes at λλ 4363, 4959, 5007 A: **I**(4363), **I**(4959), **I**(5007). The spectrum of the galaxy in λλ 4000-7000 is shown in Figure 1. We use the relation of the fluxes of those narrow forbidden emmision lines:

$$\mathbf{R = [\ j(\lambda 4959) + j(\lambda 5007)] / j(\lambda 4363) = [8.32 exp(3.29x10^4/T)] / (1 + 4.5x10^{-4}\ Ne/T^{1/2}),}$$

sensitive at a greater extent to the electron temperature $\mathbf{T_e}$ than to the electron density $\mathbf{n_e}$. The value of R = 74.3 we got, having a typical value of $\mathbf{n_e}$ = $5x10^5$ cm^{-3} for the NLR (Narrow Line Region), leads to the estimation of a typical temperature of $\mathbf{T_e}$ = 10^4K.

We can evaluate the effective volume $\mathbf{V_{eff}}$ and respectively the size $\mathbf{R_{eff}}$, the mass $\mathbf{M_g}$ and the kinetic energy $\mathbf{E_k}$ of the emitting gas in the NLR with $\mathbf{n_e}$ = $5x10^5$ cm^{-3} and $\mathbf{T_e}$ = 10^4K assumed and **I**(5007) measured via the equations (Dibay 1980):

$$\mathbf{L(H_\beta) = 4\ \pi R^2\ (1 + z)^2\ \ I(H_\beta);}$$

$$\mathbf{V_{eff} = R^2\ I(H_\beta) / j(H_\beta);}$$

$$\mathbf{R = cz / H;}$$

$$\mathbf{V_{eff} = f\ V;}$$

$$\mathbf{R_{eff} = (3V_{eff} / 4)^{1/3};}$$

$$\mathbf{M_g = n_e\ m_p\ V_{eff} / M_o;}$$

$$\mathbf{E_k = 1/2\ \ M_g\ v^2 = 1/4\ M_g\ FWHM;}$$

$$\mathbf{M_c = 3 v_r^2\ R / G,}$$

where **V** is the geometrical volume of the region, **f** ≈ 10^{-3} is the filling factor and **j** is the emmision coefficient.

$\mathbf{T_e}$ and $\mathbf{n_e}$ in the BRL (Broad Line Region) cannot be estimated directly. We accept representative of the BLR values of $\mathbf{n_e}$ = $5x10^5$ cm^{-3} and $\mathbf{T_e}$ = 10^4K acquired by comparing photoionizational models with some observational parameters. As a result we evaluate $\mathbf{V_{eff}}$, $\mathbf{R_{eff}}$, $\mathbf{M_g}$, $\mathbf{E_k}$ and the mass of the central object $\mathbf{M_c}$, all of them given in the following table:

NLR		BLR	
n_e, [cm^{-3}]	$5x10^5$	**n_e, [cm^{-3}]**	10^9
T_e, [K]	10^4	**T_e, [K]**	10^4
I([OIII] λ5007), [$erg.cm^{-2}.s^{-1}$]	$1.04x10^{-12}$	**I(H_β), [$erg.cm^{-2}.s^{-1}$]**	$5.85\ x10^{-13}$
FWHM([OIII] λ5007), [$cm.s^{-1}$]	$663x10^5$	**FWHM(H_β), [$cm.s^{-1}$]**	$899\ x10^5$
L([OIII] λ5007), [$erg.s^{-1}$]	$9.18\ x10^{41}$	**L(H_β), [$erg.s^{-1}$]**	$5.18\ x10^{41}$
j([OIII] λ5007), [$erg.cm^{-3}.s^{-1}$]	$1.15\ x10^{-19}$	**j(H_β), [$erg.cm^{-3}.s^{-1}$]**	$6.63\ x10^{-9}$
V_{eff}, [cm^3]	$1.6\ x10^{55}$	**V_{eff}, [cm^3]**	$6.19\ x10^{48}$
R, [pc]	5	**R, [pc]**	0.037
M_g, [Mo]	$6.68\ x10^3$	**M_g, [Mo]**	5.17
E_k, [erg]	$7.34\ x10^{51}$	**E_k, [erg]**	$1.04\ x10^{49}$
		M_c, [Mo]	$0.52\ x10^7$

The errors of the fluxes are about $7x10^{-15}$ $erg.cm^{-2}.s^{-1}$ and the errors of the other parameters are about 10-30 %.

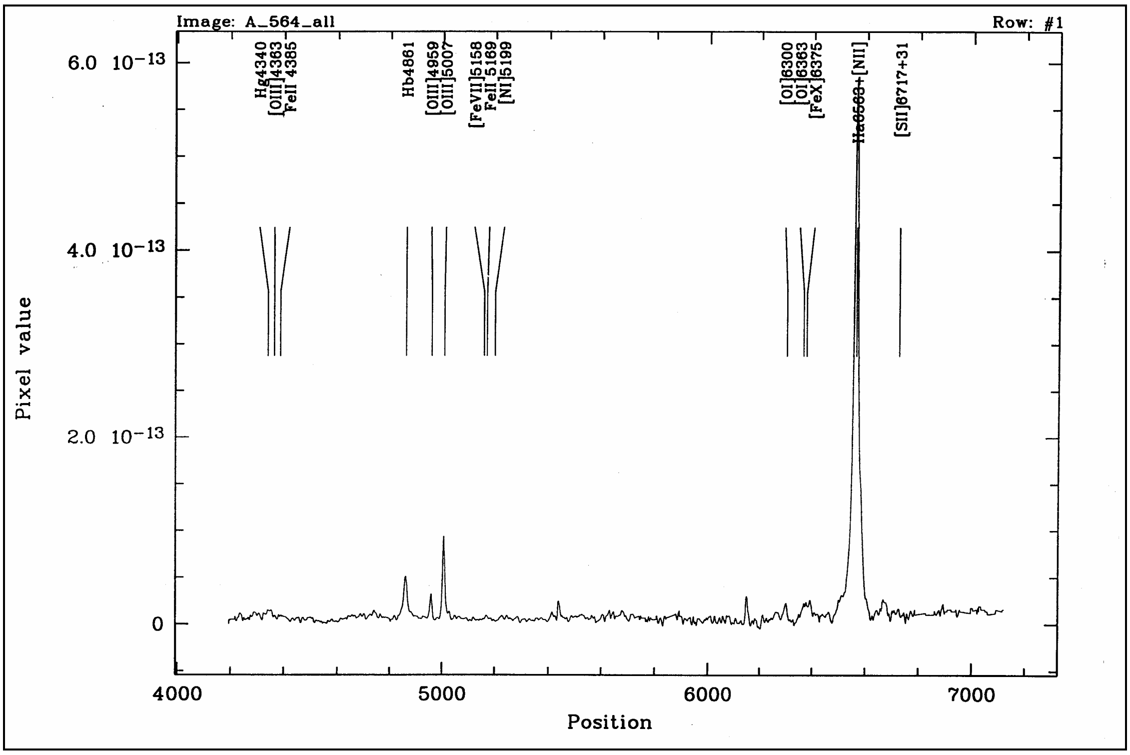

Figure 1. Energy distribution in $\lambda\lambda$ 4000 - 7000 A for Akn564. The data reduction was made by MIDAS 95NOV packages. The strongest forbidden and permitted lines are marked.

REFERENCES

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