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EVOLUTION OF THE SPECTRA OF THE SYMBIOTIC STAR Z And

All the spectra were recorded using a D spectrograph mounted on the T 80 cm of the O.H.P. (1979-1982) giving a dispersion of 93 Å/mm at Hγ. The wavelength region of interest was λ 3700 to λ 5000 Å and heated Kodak IIaO plates were used.

The emission spectrum is very rich: the following lines were observed, their intensities varying with time during which they were observed.

He II λ4686 Å was always present;

He I lines were weak in 1979 (September) and in 1982 (January);

[O III] λ 4363 Å was absent during these periods;

Fe II , [Fe II], [Fe VII] were seen when He II λ4686 was very strong likewise N III λ 4640 Å.

TiO bands (α system) were very weak in July 1981 and in October 1982.

In October 1982, the predominant feature of the spectrum was a band having a wide range of ionization energy.

We also note the absence of [O III] 5007 Å in all spectra, implying that there was no development of a nebulosity.

Measurements in UBV were carried out by other authors: Taranova and Yudin (1981), Martel and Gravina (1985), and Belyakina (1985). These data can be interpreted that the star shows oscillations of varying amplitude caused by explosions of the hot star.

The oscillations are damping and occur with a period of roughly 700 days. Colour index measurements suggest that the cold star might be an M6 type giant, and the hot star might be enveloped in He I , explaining the transformation of UV light to visible frequencies.

We were not able to discover any level of linear polarization which leads us suppose that there is no favoured direction for the ejection of matter.

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References:

Belyakina, I.S., 1985, Inf. Bull. Var. Stars, No.2698.

Martel, M.T., and Gravina, R., 1985, Inf. Bull. Var. Stars, No. 2750.

Taranova, O.G., and Yudin, B.F., 1981, Astron. Zhu., 58, 1051.