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SPECTRA OF FOUR BLUE IRREGULAR VARIABLES IN ANDROMEDA

During a variable star survey in a field around ν Andromedae I detected four irregular variable blue stars (Meinunger, Mitt. veränderl. Sterne 7, 1-21. 1975). At my request P. Notni, G.A. Richter, and S. Kopylov kindly took six image tube spectrograms (140 Å/mm) at the 2-m-telescope of Tautenburg Observatory (HQ And and IO And on 1979 Oct. 12; HV And and IW And on 1979 Oct. 13) and the 6-m-telescope of the SAO Selenchukskaja (HV And and IO And on 1979 Nov. 25).

On a plate taken with the 40-cm-astrograph of Sonneberg Observatory by B. Fuhrmann on 1979 Oct. 23 (JD 2444170.290) the photographic brightness of the stars was: HQ And=15.0; HV And=15.8; IO And=16.2; IW And=16.0.

HQ And, HV And, and IO And are photometrically and spectroscopically very similar objects. Probably they are cataclysmic binary systems. Their light-curves resemble those of objects like AM Her and AN UMa but do not belong to the U-Gem or Z-Cam-stars.

IW And seems to be a unique object.

HQ And (S 10774): Weak emission lines of H α and H β are superposed on a blue continuum.

HV And (S 10777): On both plates the spectrum is continuous superposed by weak H α and H β emission lines.

IO And (S 10785): The two spectra are continuous without emission lines. On the spectrum from Selenchukskaja H α seems to be filled in or weak in absorption.

IW And (S 10792): A photometric tracing of this remarkable spectrum is shown in Fig.1. The absorption spectrum belongs to an O or early B dwarf or subdwarf: H β , H γ , H δ are broad and strong in absorption.

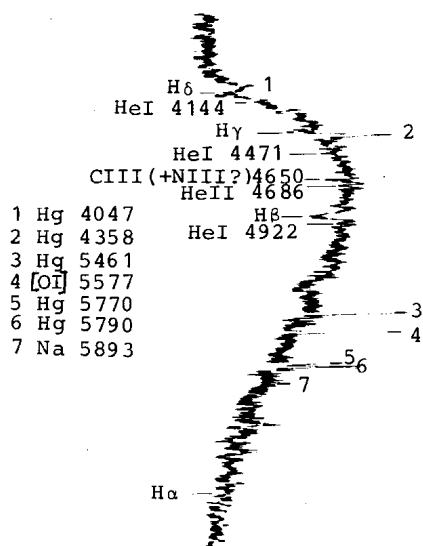


Fig. 1. Photometric tracing of the spectrum of IW And. (Nos.1-7: night-sky and city lines).

Some He I (and He II?) lines are visible but weaker than the C III - N III - band around 4650. Possibly the spectrum is composed: the hump at 5330 towards longer wavelengths is probably not caused by photographic sensitivity. At the place of H α the spectrum is continuous without signs of emission or absorption. A couple of doubtful emission lines at the limit of detectability seem to be present in this region of the spectrum, but could not be identified.

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