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THE SPECTRUM OF THE SUSPECTED VARIABLE G1 851.1 (BD+30°4633)

Photoelectric data obtained by Krisciunas (1976) had indicated some peculiarities regarding Gliese 851.1. The star, having spectral type dM0e in Gliese's catalog, was suspected to be variable by a few hundredths of a magnitude. Furthermore, the colors [(B-V) = 1.17, (U-B) = 1.12] were rather blue for the assigned spectral type, and with the listed parallax, the star is a full magnitude below the MS in the color-magnitude diagram.

At Dr. Krisciunas' suggestion, we obtained a 40 \AA mm^{-1} spectrogram of the red region of G1 851.1 at Ritter Observatory on 21 August 1978. The star appears unremarkable in the red; there is no trace of H α emission, and the spectral type is dM0-1. We note that a recent blue spectral type by Joy and Abt (1974) is simply dM0, thus confirming that no hydrogen emission is visible. The "e" designation in the spectral type in Gliese's catalog then refers to the presence of only Ca II H and K emission. G1 851.1 is then almost certainly not a BY Draconis variable, as the BY Dra stars of this spectral type all have emission visible at H α . Though a few dM stars without Balmer emission are known to flare (e.g., SZ UMa), such objects have very low rates of flare activity, and it seems unlikely that G1 851.1 could be a flare star. The nature of the variability of G1 851.1 and its atypical color indices and absolute magnitude remain unclear.

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References :

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