

A B-STAR HIGH LUMINOSITY INDICATOR

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In an effort to sort out B1a supergiants among B-stars for use in delineating spiral structure, a photometric discriminate has been sought in the following way. Wide slit 16Å/mm (flux) spectra were obtained of a sample of B stars over a suitable spectral and luminosity range. These spectra were digitized on the PDS Microdensitometer. Numerical filters of various widths were then slid along the spectra and numerous color-indices were formed and tested. An index $l_0 = u + v - 1.9$ (l) plotted against c_0 , where l is a 200Å halfwidth passband centered near 3840 Å and the other magnitudes are on the Strömgren 4-color system, succeeds in separating the Ia supergiants up to B1. For stars of spectral type B1 and earlier, confusion sets in and the separation is uncertain (although a fair percentage of success is also had for types B1 and B0). This luminosity discriminate is now in use for a large spiral structure program in which all known Be stars (and perhaps eventually all B stars) are being surveyed for Ia supergiants. Spectra for 2-dimensional classification are obtained for the Ia candidates.