

SPECTRAL TYPES, COLOR INDICES, AND ABUNDANCES FOR CEPHEIDS IN THE  
MAGELLANIC CLOUDS AND THE GALAXY

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Abstract: Accurate MK temperature and luminosity classes have been obtained for 58 Cepheids in the Galaxy and in the Magellanic Clouds from 121 spectrograms. Classification criteria for the spectral region 3700X - 6000X in the spectra of F-K supergiants are described. The spectra of galactic and LMC Cepheids are found to be similar, and Cepheids in both systems appear to obey the same relation between  $(B-V)_0$  and spectral type. The low  $E(B-V)$  values of Parsons (1970) and certain other recent authors are confirmed. The spectra of SMC Cepheids show slightly weaker metal lines relative to galactic Cepheid spectra, and SMC Cepheids average about 1.3 subclasses earlier in spectral type than LMC and galactic Cepheids at the same value of  $(B-V)_0$ . Reddenings for both Clouds are found to be less than 0.05. Among supergiants ( $M_v = -4$  to  $-8$ ), stars of the same spectral type have the same  $(B-V)_0$  regardless of luminosity class. Spectral types at minimum light are found to be later than those reported by Feast (1974) when luminosity effects are allowed for. Spectroscopic surface gravities near minimum light appear to be lower than those near maximum and slightly fainter  $M_v$  values are found at each luminosity class than those usually cited. SMC Cepheids appear to have lower surface gravities than LMC Cepheids at the same absolute magnitude, as one would expect from the lower metal abundances.

A full account is being prepared for the Pub. Astron. Soc. Pacific.