

ULTRAVIOLET OBSERVATIONS OF BINARIES WITH LUMINOUS COOL PRIMARIES
AND HOT SECONDARIES

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Unresolved, spectrum or spectroscopic binaries containing F or G giant or supergiant primaries are being observed with the IUE satellite. In most cases the secondary is a B or early A star probably still on the main sequence. The temperature class of the secondary is determined accurately by UV spectral classification and/or analysis of the composite flux distribution. The flux analysis uses a large grid of intrinsic colors and yields a best trial-and-error fit for the spectral types of primary and secondary, their V magnitudes, and the interstellar reddening. From the temperature class of the secondary, its probable main-sequence luminosity leads to a luminosity estimate for the primary with an uncertainty of about one magnitude. Several single-lined spectroscopic binaries are also being observed at high dispersion (in collaboration with Ake, Fekel, Harvel, and Kondo), to get the differential velocity between components from which mass ratios can be determined and masses estimated for the supergiants.

One system, HD 207739, shows evidence of considerable mass loss and hence probable interaction between the components. Previously classified as F8 IJe + B:, this star has a very unusual ultraviolet spectrum, with abnormally strong and numerous absorption features in the far UV and extremely strong Mg II emission. There is some resemblance to shell and pre-main-sequence B stars, but it most closely matches the strange spectrum of the interacting system SX Cas (outside of eclipse) and probably has a considerable amount of material surrounding a B-type component similar to other W Ser systems. HD 207739 needs to be monitored for light and velocity variations; it apparently has a large range in radial velocity and could be an eclipsing system.

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