A CATALOGUE OF 0.2 Å RESOLUTION FAR-ULTRAVIOLET STELLAR SPECTRA MEASURED WITH COPERNICUS

Theodore P. Snow, Jr. and Edward B. Jenkins
Princeton University Observatory

Of the nearly 300 stars which have been observed in the ultraviolet with Copernicus, 60 have been chosen for publication of their complete intermediate-resolution spectra, which consist of scans made with photomultiplier U2 at a nominal resolution and step length of 0.2 Å. The spectra cover the wavelength range 1000 to 1450 Å and are expressed in the form of direct numerical tabulations, compressed-scale plots, and synthetic photographic spectrograms. These three modes of presentation are expected to satisfy the needs of various types of research on stellar spectra, ranging from detailed and rather specialized analyses of line profiles, which require accurate numerical results, to broad, comparative studies of various qualitative features over different spectral types, for which the plots or photographs are best suited. From the qualitative comparisons one might expect to synthesize more exacting criteria for spectral classifications of normal stars, using ultraviolet instead of visible spectra. The catalogue has been submitted for publication in the Astrophysical Journal Supplements.

The 60 stars included in the catalogue were chosen to give maximum coverage in the H R diagram, and they represent a good distribution of luminosity classes among spectral types O4 to A1. Wolf-Rayet stars, Be and shell stars, and other known peculiar objects were avoided, since the primary purpose of the catalogue is to present data on normal stars for a variety of temperatures and luminosities.

All of the data have been corrected for background and stray light contamination, and are generally of good quality, although minor flaws may still be present.

The numerical tables include an indication of the number of repeated scans averaged together at each wavelength, so that the noise amplitude due to photon statistics may be estimated directly. In the synthetic photographic spectrograms a granularity proportional to the relative noise amplitude is superposed. This granularity mimics the noise seen in ordinary photographic spectra of faint objects without

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degrading the actual spectral information. The eye can easily judge relative qualities of spectra from different stars and at a glance one can differentiate between noise fluctuations and authentic stellar and interstellar lines.

Included with the catalogue are figures showing the estimated absolute sensitivity of the U2 detector, including information on the change of response with time. The determinations of instrument sensitivity are based on observations of stars whose absolute fluxes have been measured (at $\lambda \gtrsim 1150$ Å) or computed (for $\lambda \lesssim 1150$ Å). From these sensitivity curves and the observation dates, which are also given, it is possible to reconstruct approximate far-UV absolute flux distributions of the stars in the tables.

The compressed plots, which are presented at the same linear wavelength scale as the synthetic photographic spectrograms, can be used to make a qualitative examination of luminosity and temperature effects. P-Cygni profiles indicative of mass loss, and line-blanketing (especially in the B supergiants) are particularly prominent features of these plots. Much the same sort of information can be derived from the synthetic photographic spectrograms.

It is important that our Princeton colleagues be acknowledged for their part in planning and carrying out the observations included in the catalogue, for their role in the development of the data-handling and correction procedures which were utilized, and for permitting us to use data originally acquired for other purposes. Several Copernicus Guest Investigators were similarly generous. Dr. W. Bidelman provided some of the initial encouragement to undertake this effort.

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