SPECTROSCOPIC OBSERVING CAMPAIGN

Paul K. Barker
The University of Western Ontario

With organization of the Photometric Observing Campaign well under way, there is an exciting opportunity for collaboration amongst the spectroscopists. I am proposing a program of regular ground-based spectroscopy of the 100 or so brightest northern Be stars, to be contemporaneous with the photometric program.

Of fundamental importance to dynamical theories for Be stars is an observational understanding of their time-dependent behavior, yet even though previous long-term studies of spectral variability have been undertaken (as well as intensive studies of individual stars) the tendency is for each observer to concentrate on particular favorite objects. Systematic observations of all the bright northern Be stars would give, without prejudice, extensive information on the nature and timescale of the spectroscopic variations. Spectroscopy concurrent with the photometric program can only enhance the value of the data.

Obviously, several groups already have well established observational programs of both a long term and a concentrated nature; one program has been organized to combine observations at many diverse wavelength regions, for a few selected stars. The point of this proposal is that, in the effort to better understand Be variability in a larger more general group of stars, the scientific aims might be well served by a cooperative venture in which the observational burden is shared. Even in the outstanding "Atlas of Be Stars" for example, only some of the stars are observed more than once a year. Further, a special advantage of a cooperative campaign is the facility to detect, at the earliest possible stage, developing activity in previously quiescent stars. Rapid communication of the incipient activity to all collaborators would enable intensive study of the active phase by both photometrists and spectroscopists. Even isolated sporadic observations could contribute significantly when collated with other spectra.

Such a program of regular spectroscopy is in progress with an intensifier-dissector-scanner at The University of Western Ontario 1.2m telescope. The scanner is a 512-channel instrument with present

M. Jaschek and H.-G. Groth (eds.), Be Stars, 275–276.
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https://doi.org/10.1017/S0074180900037943 Published online by Cambridge University Press

resolution of about 0.7Å in the blue and 1-2Å in the red and near-infrared. The capabilities of the scanner are demonstrated by the observations described elsewhere at this Symposium. The scanner is sufficiently fast that from 1980 April to November, Hα scans were secured of all the program Be stars, along with Hβ and near-infrared scans of one-third of the stars, as well as complete and repeated spectral coverage of selected active stars (ζ Oph, o And, θ CrB, and 59 Cyg that year for example). Resolution for the 1981 Be season will be doubled by a new grating, and it is quite realistic to expect comparable observational productivity in the future.

On a practical level, one must consider seriously the mechanics required for cooperative spectroscopy. A specific obstacle to successful collaboration might arise from the difficulties which attend intercomparison of spectral data obtained with diverse equipment and instrumental profiles. The labor involved in effective juxtaposition of data could well prove to be overwhelming. In this event the only sensible mode for collaboration might be to simply exchange information on active stars quickly enough that all observers have the opportunity to follow the active episodes.

One way to evaluate the prospects for true interchange of data would be for all participants to observe a small number of agreed standards, and to compare the profiles from the different observatories, before embarking on such a project. Even if this test gives discouraging results, there are still occasions when knowledge of the qualitative profile at a crucial phase of activity would be valuable. Comments and suggestions (for example, how should the star list be subdivided?) are sought from observers interested in a possible campaign of this general nature.

https://doi.org/10.1017/S0074180900037943 Published online by Cambridge University Press