STARSP - THE COMPLEX OF PROGRAMS FOR ANALYSIS OF THE SPECTRA OF NORMAL STARS.

V. V. Tsymbal

Department of Astronomy, Simpheropol State University, Crimea, Ukraine

ABSTRACT. STARSP is the first version of analogs of part to CCP7 project. This system allows to make all parts of proceeding and interpretation of stellar spectra in the LTE approach. System works at the IBM/PC–AT computers and may be useful for professionals and students.

Key words: Stars: atmospheres, abundances; Methods: numerical

First part of the system modeling of stellar atmospheres.

The user can:

1) Select the model from one of catalog of models. Now in system include two such catalogs: Kurucz (1989) and "Uppsala" catalog, in which the models for lg g=1.5, 2.25, 3.0 were taken from the published grid of Bell et.al. (1976). For lg g=-0.75, 0.0, 0.75 ($T_{eff} = $ 4000 – 6500 K) [A]=+0.5, 0.0, -0.5, -1.0, -2.0, -3.0 models were computed in 1992 by I.F.Bikmaev in Uppsala using MARCS code of Gustafson et al. (1975).

2) Interpolate between the models from these catalogs.

3) Calculate models atmospheres with using of modified "Atlas-6" program. For cool stars models include molecular absorbtion in "smeared lines" approach from program of T.Kipper and J.Sitska.

Second part is calculation of synthetics spectra. Now in system using two lines list from (3200-9000) Å: Kurucz's (1988) list and compilation from Bell's light and heavy lists with Kurucz's (1991) Fe–Ni list. The computed spectra can be convoluted with a gaussian.

Next part is proceeding of observed spectra with using of previously calculated synthetic spectrum. This part includes:

1) Computation of the dispersion curve and comparison of the observed spectrum with theoretical one.

2) Search of the continuum spectrum level with recommendations from the synthetic spectrum.

3) Determination of the equivalents widths, FWHM and r by using both manual and automatic regimes. Separation of the blends by using the algorithm by V.Kutcherov.

And last part is the abundance determination by using the modified WIDTH6 program by R.L.Kurucz.

All calculations are graphically illustrated. The rule of the system is very simplicity.

Requirements: MS-DOS operating system, about 550 KB conventional memory and 10 MB on hard disk; EGA/VGA monitor. The coprocessor is optional.

References

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