DISCUSSION (Kurucz; Hubeny; Artru)

HUBENY: I would like to ask Dr Kurucz what exactly is the physical meaning of the "flux" in the new grid of your models?

KURUCZ: The flux is the average in the distribution function's wavelength interval. It looks just like a bar graph. The tabulated wavelength is usually at the center of the interval. This can cause apparent wavelength shifts in strong lines such as the Paschen series.

MITSKEVITCH: The traditional approach to the modeling of stellar atmospheres is based on simple assumptions of plane-parallel, hydrodynamic stability, etc. Do you think these assumptions are valid for CP stars?

KURUCZ: No. But when I started this work as an undergraduate, the models did not even have line opacity. Including the line opacity was the most important missing physics. Once that problem is solved, we can work on the others more safely because that part of the physics will be constrained.

HUBENY: These assumptions are not, strictly speaking, valid. But in order to achieve an understanding of the subject, one has to proceed step by step, and to understand well all intermediate steps. Such a step is at the moment, in my opinion, represented by the plane-parallel hydrostatic models. These models seem to provide a good basis for considering more subtle physics, for example diffusion, without a necessity to put all physics together in constructing a model atmosphere.

MICHAUD: What is the surface T that is calculated? Is it the electron temperature and what is its effect on the outgoing spectrum?

HUBENY: The temperature in our models is always understood to be electron temperature, assumed equal to the proton temperature and other kinetic temperatures. Various spectral features are formed at various depths. A figure which displays depth of formation of various features is given in my paper.

GRIFFIN: (Comment on Artru's paper) Accurate atomic data are essential for progress in astrophysics research, but what may not be equally appreciated is the degree of overt support that is needed in order to maintain the work of the laboratory analyists. In London, for example, Dr R Learner is providing extremely high quality vacuum UV data, but cannot get financial support to continue the work. The atomic physics people are not interested because his research is "not sufficiently exciting" for them, and his only support comes via astronomy and is vanishing. The users and the suppliers of these data will have to improve their communication and publicise their mutual support much more substantially if this essential link between the laboratory and the stars is to be maintained and enhanced.