calibrations in several respects. First, new observations of a number of field and open cluster giants allow a much more precise definition of the solar-abundance fiducial relation in the 2-color diagrams from which the abundance-sensitive delta indices are derived. Secondly, observations of a large sample of globular cluster giants clearly demonstrate, and allow correction for, a decrease in metallicity sensitivity for cooler giants. Thirdly, a new abundance index, C-T1, and a new temperature index, M-T2, are introduced. The M-T2 color provides a much broader baseline than the T1-T2 color and is thus much less susceptible to photometric errors in determining abundances.

Metal-abundance calibrations are derived over the range from [Fe/H] = +0.5 to −4, with an error of 0.15 dex. The abundance indices vary by 1 mag. over this range. We confirm that the Washington system offers a unique combination of efficiency and accuracy for determining metallicity in late-type giants over the full range of stellar abundances, although the system loses sensitivity for the coolest metal-poor stars. The Washington abundance scale for globular clusters is in good agreement with that of Zinn, and with that of Janes for open clusters.

The system and new calibration are then used to investigate abundances of some of the most metal-poor globular clusters in the Galaxy. Several clusters, including NGC 2298, NGC 4590 and NGC 6101, are found to be significantly more metal-poor than previously thought, approaching [Fe/H] −3 and thus extending the lower limit to globular cluster metallicities by 0.5 dex. This has profound effects on the ages of these objects, the Universe, and everything.

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## ATMOSPHERIC OSCILLATION IN BETA MON A

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We analized a series of 42 plates obtained with the 1.5m reflector at CTIO. It appears that Beta Mon A suffers 1.7 hours atmospheric oscillations that vary in amplitude from one cycle to the next. The observed profile of Mg II $\lambda$ 4481 is variable and, sometimes, displays emissions.

## Be STARS: SOLUTIONS OF THE MASS, MOMENTUM, AND ENERGY EQUATIONS OF THE RADIATIVE TRANSFER PROBLEM

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We have computed theoretical profiles of H$\alpha$ on the basis of an expanding chromospheric structure, solving the radiative transfer problem in spherical geometry and the statistical equilibrium. The profiles obtained are of the type of the ones observed in Be stars. The temperature and velocity laws introduced to solve the transfer equation can be obtained by solving the mass, momentum and energy equation; it has to be taken into account that the characteristic length of dissipative phenomena is different in the regions of minimum and maximum temperature.

We also computed an atmospheric model for the continuum, including velocity gradients, in order to predict the IR excess and its relation with the H$\alpha$ profile.

## RADIAL VELOCITY RESEARCH USING THE FACILITIES OF SOME OBSERVATORIES AT THE SOUTHERN ANDES

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We review some of the current research that we are doing using observations from CTIO and CASLEO suitable for radial velocity measurements. The programs are devoted to the study of the frequency of binaries among open clusters and associations, and among groups of peculiar objects like, He weak, $H_e$ rich and Ae stars among others. Also we will comment about a contribution to the study of the space velocities of Ap stars that will be observed by Hipparcos. We will provide the radial velocity component for these stars. Some results will be shown as well as instrumentation for radial velocity work available at CA.

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