26.06.05 Motions in the Atmosphere of Alpha Orionis. L. Goldberg, L. Testerman, D. Willmarth, KPNO - Velocities in the photosphere and shell of Alpha Orionis have been monitored in selected spectral lines at the McMath and Mayall telescopes during a period of 4.5 years. The results will be summarised. The heliocentric velocity derived from the photospheric lines decreased from about 24 km/sec to about 16 km/sec in 1974 - 79 while the heliocentric velocities measured from the shell absorption lines x I 7699 A remained constant at 10.9 ± 0.3 km/sec and 4.5 ± 0.2 km/sec. It is pointed out that the motions associated with the photospheric component of the spectrum are predominantly upward relative to the star's center of mass and that the speeds are well in excess of the sonic value. The asymmetric cores of H-alpha, the Na D lines, and the infrared triplet of CO also do not share in the photospheric line displacements and are evidently formed at the base of the expanding envelope, where the flow velocity is seen to accelerate from zero relative to the star's center of mass all the way to the terminal value given by the K I line. The implications of the results for the mechanism of mass loss will be discussed.

26.07.05 Possible Evidence for Mass Loss in F- and G-Type Supergiants. S. A. Lamb, UMSL; K. Kwittner, Williams College; W. Sargent, Caltech - High dispersion Hα spectra of forty F- and G-type supergiants were obtained using Shectman's photon-counting, multichannel spectrometer at the Mt. Wilson 2.5m telescope. Additional spectra centered on the Na D lines were obtained for seven of these stars. Structure in the core of Hα is present in most of the stars of spectral type F and later, and may be due to superimposed absorption or P Cygni features. Slight asymmetries are apparent in the Hα profiles of approximately one-third of the sample and occurs most frequently in the early G-type supergiants. Apart from the previously known emission line stars 89 Her and RZ Oph, only one other star in our sample showed emission in Hα. This is the G8 Iab star HD 63302 which has an emission feature to the blue of the unshifted absorption line. The Na D I line profiles of RZ Oph indicate blue shifted absorption features similar to, but less pronounced than those present in the spectrum of 89 Her, but those of the other five stars in which these lines were measured show neither asymmetry nor significant structure. Thus, although typical F- and G-supergiants show no marked indications of mass loss, the small scale structure in the Hα cores suggests that some mass loss may be occurring. Future studies of this class of stars both optically, at very high dispersion, and in the ultraviolet, where there are several strong resonance lines, should show whether this tentative conclusion is correct. This research was supported in part by NASA Grant NASA NSG-5400.

26.08.05 Mass Loss in Main-Sequence B Stars, I. Furenlid, KPNO, and A. Young, San Diego State University. Hα has been observed spectroscopically in 65 normal, main-sequence, early B-type stars. The observations were made with the coudé feed, using a CCD at a dispersion of 450 A per pixel. A majority of the stars show asymmetry in the Hα profile such that the blue wing is depressed relative to the red. The line asymmetry is interpreted as an outward flow of material, leading to mass loss. This view is supported by satellite UV observations of highly ionized, abundant elements such as C IV, N V, and O VI. The observed line asymmetries correlate strongly with v sin i and suggest the following conclusions. A large value of v, and therefore v sin i, always leads to mass loss. The mass flow occurs mainly parallel to the equatorial plane and there is no mass loss over the poles of the stars. Rotationally triggered mass loss on the main sequence has been traced from late G-type stars to early A stars and probably extends beyond these limits.

26.09.05 Lyman Alpha Emission from Altair, W. A. Landman, R. C. Henry, R. C. Anderson, and B. W. Moos, Johns Hopkins University, and J. L. Linsky, U. of Colo. and N.B.S. - The A7 V star Altair (HR 7557, V = 0.77, d = 33.05 pc) has been observed with the high-resolution (UI) channel of the Princeton spectrometer on the Copernicus satellite, over a wavelength range of 0.9 Å centered on the Lα resonance line of neutral hydrogen. A total of 26 scans were obtained, on 21 August, 1976. The data are noisy, but reduction both with Princeton "standard" particle backgrounds, and using the low-resolution U2 channel (which was scanning near 1312 Å) as a "real-time" particle monitor, gives evidence for a "chromospheric" Lα emission line from the star. The emission line is cut by interstellar H and perhaps D Lα absorption. Existence of such emission from an A-type star is unexpected.

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26.10.05 Lyman-8 Fluorescence and a Search for OI 1302 Triplet Emission In Be stars. Oberle, W., Pollidan, R., Princeton U. Observatory, Peters, G., USG - In many Be stars, the OI 1304 line is present as an extremely strong emission line, which is generally attributed to Lyman-8 fluorescence. In the fluorescence process, if