07.05.03 The Five Minute Oscillations as Random Oscillators.  DAVID K. LYNCH, San Fernando Observatory, Aerospace Corp., and McDonald Observatory, University of Texas, Austin.

An analysis of a 2.5 hour duration 30 sec time interval FeI k6495 doubly subtracted spectrophotograph Doppler movie has shown that the five minute oscillations are horizontally non-propagating independent vertical oscillators. (Lynch 1975 AAS meeting, Solar Physics Div. Jan, 20-23, Boulder, Colo.). This possibility is tested by constructing a kinematic model of the oscillations composed of many randomly placed elements which oscillate independently of one another. The mean period is 300 sec and the mean diameter is 5000 km. A two dimensional k - ω power spectrum is calculated and shown to agree very well with the observational k - ω power spectra reported in the literature. This accord ance is discussed. It is shown that theoretical perturbation analyses (solutions of the dispersion equations) cannot be compared to observed k - ω power spectra unless proper account is taken of the ensemble of oscillating elements.

07.06.03 The Character of 300-Second Oscillators. L. J. Novembre, JILA, U. Colo.; G. W. Simon and S. P. Woroden, Sac Peak Obs., AFGL. A new technique is presented to provide two-dimensional amplitude and phase information from solar velocity data. Pictures showing amplitudes (freq-o-grams) and phases (phase-o-grams) have been constructed for a variety of oscillatory periods. These data are used to study the evolution and horizontal scales associated with the 300 second oscillation. Individual oscillators are distributed at random and seem to evolve independently of one another. The detailed characteristics of a single "mean" oscillator will also be presented along with a discussion of the distribution of parameters around this mean.

07.07.03 New Observational Limits on the Sun as a Pulsating Star. W. Livingston, Kitt Peak Nat. Obs. The calculations of C. Wolf and the oblatness measurements of H. Hill, and colleagues, has prompted us to inquire whether the sun, viewed as a star, exhibits short term periodic variations in brightness or velocity. Photometric monitoring of the telluric sensitive line OI 6300 Å indicates a 6°66K fluctuation (equivalent to .004 ±.004 mag in brightness) over a 4 hour time span. Doppler displacements of Na D at 5893 Å relative to nearby telluric OI shows that for time intervals <10 the sun can be stationary <4 m/sec. However, if we examine a sector 1/6 the solar disk in area, we find quasi-periodic oscillations having periods ~5'0', ~10'0', and ~20'0', and amplitudes 560 m/sec.

07.08.01 The New Digitalized Solar Radio Spectrograph in Bunten. B. von ARX, A.O. BENZ and G.L. TARNSTROM, Microwave Lab. ETH, Zurich. A computer controlled solar radio spectrograph nears its completion at ETH. In the frequency band 100 - 1000 MHz up to 2000 measurements per second with 1 MHz bandwidth can be programmed. The digital control allows not only digital recording on IBM compatible magnetic tape, but also on-line calibration, burst detection, changes in the program of observing frequencies, antenna positioning etc. The digital intensity values are stored in a buffer which holds the spectra of about two seconds. This short pre-history is written on tape with every burst. Replay of registered data on a monitor screen is possible; further processing is achieved on a large computer.