are shown to be due to the differences in geometry themselves.

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52.06
New Observations of Solar Oscillations at SCLERA

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A new set of measurements of solar diameters has been obtained at SCLERA (the Santa Catalina Laboratory for Experimental Relativity by Astronomy). The observational technique and telescope apparatus are very similar to those used in the 1979 SCLERA solar diameter observations (Bos and Hill, Solar Physics, 82, 89, 1983). Data of this type (Bos and Hill 1983) was obtained for the solar latitudes 45°, 0°, 45° and 90°. Data was acquired at 64 second intervals for each of these four latitudes, and the entire 256 second cycle was repeated continuously throughout each observing day. It is worth noting that the new data will allow a determination of the visual solar oblateness to a potential accuracy of one milliarcsecond of the solar diameter. The new set of data was obtained between May 1983 and March 1984. From 6/1/83 to 7/20/83 data was taken on 47 days at an average of 8.8 hours of data per day. From 10/10/83 to 3/21/84 data was taken on 29 days at an average of 5.8 hours per day.

The increased spatial information should be of help in assigning eigenmodes to the various peaks in the power spectra of the observations. In particular, the data obtained for the pole should facilitate identification of the low degree m = 0 modes. This report will discuss the preliminary analysis of the new data.

This work was supported in part by the Astronomy Division of the National Science Foundation and the Air Force Office of Scientific Research.

52.07
Comparing α CMa with the Sun: Chemical Composition, Mixing-length, Age, and p-Mode Oscillation Spectrum

P. Demarque and D. B. Guenther (Yale U.)

Using the standard assumptions for stellar evolutionary calculations, a comparison has been made of the internal structure of the Sun with that of the two components α and β of a Centauri for which accurate astrometric masses are available. Under the constraint that both components of a Centauri have the same age and chemical composition, the chemical composition, mixing-length, and age are derived for the system. The p-mode oscillation spectra of a Centauri and of the Sun are calculated and discussed in light of their observational consequences. This work was supported in part by a grant from the National Science Foundation and in part by NASA. One of us (P. B. G.) is the holder of a FACER Postdoctoral Fellowship from Control Data Corporation.

52.08
Center to Limb Behavior of Some Strong Fraunhofer Lines

J. C. LoPresto (Edinboro Univ. of Pa.), A. K. Pierce (Nat'1 Solar Observatory, Kitt Peak)

Center to limb scans for the strong lines Mg I

5183, Ca I 4227, Na I 5896 and the Ca II 3968 H line have been observed with the aid of an absolute reference provided by Hollow Cathode tubes. Preliminary results indicate that these lines show little center to limb variation. These strong lines give a shift of about 700-800 meters/sec at the disc center. A shift of about 2000 meters/sec is observed for the Ca II H line. As one observes closer and closer to the limb, the shifts tend further and further toward the predicted gravitational red shift of 636 meters/sec.

52.09
Preliminary Analysis of Multi-color Reticon Data at the San Fernando Observatory

A. D. Hertog (SFQ/CORN), S. F. Mason (Bucknell University), G. A. Chapman and J. K. Lawrence, (SFQ/CORN)

San Fernando Observatory (SFQ), operated by California State University, Northridge, has been producing two dimensional reticon maps of solar active regions since 1982. In general the system is tunned to 6264 Å (continuum). In 1983 data for some active regions was also obtained at 5245 Å, 6663 Å, and 10,000 Å. For preliminary analysis a spot observed on September 2, 1983 has been selected since this data set contains a large amount of clear photosphere from which to calibrate limb darkening at all wavelengths and the limb from which atmospheric scattering can be evaluated. This research was supported in part by the NSF.

52.10
Magnetic Fields, Downdrafts, and Granulation in the Solar Photosphere

A. M. Title and T. D. Tarbell (Lockheed PARL)

We discuss very high resolution observations of quiet and active sun in the photospheric Fe I line 5250. These images were obtained on film at the Sacramento Peak Tower with a Lockheed tunable birefringent filter. When magnetograms and dopplergrams are coaligned and compared at this resolution (1/2 arc second), we find that the weaker magnetic flux concentrations are well correlated with downdrafts. This occurs for magnetogram signals in the 100 - 500 gauss range, presumably corresponding to area filling factors of 10 - 50 percent. These fields form a small scale network pattern, with "cell" diameters of 2 to 5 arcseconds; these are somewhat larger than the mean intergranular spacing of 2.4 arcseconds. Magnetic fields in this network correlate better with dark intergranular lanes than with bright granules in the coaligned continuum images. This relationship is less clear than the downdraft correlation, because our observed granule-lane contrast is much less in magnetic flux than in non-magnetic photosphere (abnormal granulation). In stronger flux concentrations (500 - 1000 gauss), the downdraft is suppressed compared with the weaker magnetic surround. These correspond to pores and "holes" in the continuum image. By holes, we mean transient spaces between the bright granules that are somewhat darker than average but not obvious pores. The time-scale for rearrangement of the small scale magnetic network is not currently known, but it is definitely longer than the 5 to 10 minute time-scale of granulation.