WEDNESDAY, 20 AUGUST

Special High Energy Astrophysics Division Meeting:
Montezuma Hall South, 1400–1700

Invited

Results from MIT X-Ray Observatory, SAS-3. G.W. CLARK, MIT.

X-Ray Observations of Solar Active Regions from Skylab. G.S. VAIANA, HCO.

Observational Problems Associated with High-Redshift Objects. E.M. BURDIDGE, USNO.

Physics of Compact X-Ray Objects. W.H. TUCKER, Strawberry Hill Farm.

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Session 36: Open

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Session 37: Council Chambers, 1400–1700

37.01.03 How to Observe Faculae. E.N. Frazier, Aerospace Corp. - In past years, several different models of photospheric faculae have been developed, all of which seem to disagree in a rather fundamental manner not only with each other but also with at least one set of observational data. Thus, for example, facular models based on continuum contrast curves cannot reproduce facular line profiles and vice versa. It is important to point out that a common thread through all this work is the assumption, usually implicit, that there indeed exists a single average, or "typical," facula. The resolution of the apparent contradictions lies in recognizing the individuality of that assumption and its implications. Current data indicates that there exists an entire range - a one parameter family - of faculae. This range extends all the way from quiet Sun faculae up to the actual formation of porsa. The members of this family do not differ by simple scaling; the T (T) behavior seems to be fundamentally different. The result of this behavior is that a particular type of observation has a strong tendency to select a parity subset of the entire family. Thus a great deal of past facular data is probably contaminated by observational selection. In the future, data on faculae will have to be gathered with great care to ensure statistical completeness.

37.02.03 Helical Motion in an Eruptive Prominence. S. F. Martin, Lockheed Solar Obs., R. T. Hansen, HAO - On 17 October 1974, a classic example of a fountain-type eruptive prominence was simultaneously photographed at Lockheed Solar Observatory and the Mauna Loa station of HAO. During the early stages of the eruption, time-lapse Hα spectra and 1A slit-jaw images were obtained on the multi-slit spectrograph at Lockheed while 10A Hα time-lapse filtergrams were obtained at Mauna Loa. The arrays of Hα spectra unambiguously show that one entire leg of the prominence was rotating clockwise as seen from above at a rate of approximately one revolution every 3 hours while the prominence was ascending at a mean rate of 50 km/sec. The 1A slit-jaw images reveal a great amount of fine structure in the low velocity mass in the prominence. The 10A filtergrams from Mauna Loa show the shape of the entire prominence to be remarkably similar to the 12 Dec. 1973 eruptive prominence photographed in the He 394 nm line by NEL on board Skylab. Associated with the ascending prominence was an apparent disruption of a long-lived, high latitude streamer in the southern hemisphere. The Lockheed contribution to this study is supported by NASA contract NASB-30026.

37.03.03 Thermal Instability in Loop Prominence Systems. S.K. ANTIOCHOS and P.A. STURROCK, Stanford Univ. - We investigate the possibility that the appearance of cool knots of dense gas high in the corona following solar flares may be due to a thermal instability. It appears sufficient to adopt a onedimensional single-fluid model. Our calculations indicate that a thermal instability will indeed lead to the formation of small condensations near the top of a magnetic loop, provided that a certain criterion is satisfied, namely that the radiative losses exceed the conductive losses. When a perturbation of small amplitude (less than 1%) and large scale size (greater than 3 x 10^9 cm) is introduced into an initially uniform