should improve the reliability of a fit, allow an estimate of $n(a)$ and may provide evidence of a mixture of grains. For grains of refractive indices representative of ice, iron, quartz, and graphite, curves of E_{abs} vs heliocentric distance and E_{em} vs Tg are given for several radii. These curves permit Tg as a function of r to be found. Curves of $F_{\lambda}(a, m, Tg)$ are also given.

The analysis is applied to the infrared observations of comet Ikya-Seki 1965f of Becker and Westphal. Observations must be corrected for molecular emissions and scattered sunlight. The latter should be found from the continuum intensities in the visible, say 0.5μ and the run of the solar continuum. Angular scattering cross section for grain models enable the solar contribution to be eliminated and $F(\lambda)$ for the comet grains to be obtained. Reliable evaluation of grain properties do not appear possible from existing measurements. Infrared spectroscopic measurements of cometary spectrum are very important and should be pursued.

Masses and Radii of White Dwarf Stars as Determined from the Model Atmosphere Approach. YOICHI TERASHITA AND SATOSHI MATSUSHIMA, *University of Iowa* (present address: the Pennsylvania State University).—An attempt has been made to determine masses and radii of DA type white dwarf stars from observed *UBV* colors and luminosities. The model atmospheres have been computed including the blanketing effect due to Lyman and Balmer series lines. In computing the line profiles, we have used the Stark broadening formula recently given by Griem (*Astrophys. J.* **147**, 1092, 1967). The color diagram appears systematically different from that previously obtained from the models without blanketing (Terashita and Matsushima, *Astrophys. J. Suppl.* **13**, 461, 1966).

Effective temperatures thus determined for individual stars are in general about 25% higher than those which we would obtain from interpolations between the blackbody curve and that of the main sequence stars. Since these temperatures give radii smaller than those based on the above-mentioned interpolation method, they seem to be more preferable in interpreting the recent observations of gravitational redshift by Greenstein and Trimble (to be published). A division of white dwarfs into two sequences with different radii is confirmed for a certain temperature region, but in other regions the separation is not clear. Among the DA stars with known parallaxes, we have been able to determine T_e and $\log g$ of 20 stars, and thus their masses and radii. All the high-temperature stars seem to satisfy the theoretical mass-radius relations predicted by Hamada and Salpeter

(*Astrophys. J.* **134**, 683, 1961). For stars with lower temperatures some deviations from the theoretical relations are seen, and they appear to be related to the existence of the two equi-radius sequences. We have obtained $M/M_{\odot} = 0.38$ for 40 Eri B which gives a satisfactory agreement with the observed value of 0.43.

This research was supported in part by the National Science Foundation under grant GP-4742.

Observations of Solar Soft X Rays from OSO-III: First Results. R. G. TESKE, *The McMath-Hulbert Observatory*.—Observations of the solar soft x-ray component are discussed.

Comparison of a daily base level of the 8–20 Å flux with 2800 mHz daily flux gives a quantitative relationship very closely like the relationship between NRL 8–20 Å flux and 2800 mHz daily flux. Therefore our energy scale is in good agreement with that of NRL.

Enhancements of soft x-ray flux are observed at the time of solar flares. At least 88% of subflares and importance 1 flares are accompanied by a detectable enhancement of soft x rays. During times without flare activity, the soft x-ray flux exhibits small fluctuations on a time scale of the order of tens of minutes. These fluctuations may accompany fluctuations in $H\alpha$ plage brightness, but usually do not accompany clearly visible changes in $H\alpha$ features on the disk.

Comparison of $H\alpha$ light curves for a few flares with the x-ray flux-time curves indicates that for at least some flare events there is a good time relation between the $H\alpha$ event and the x-ray event.

Bursts and Pulses in the Jupiter Decameter Emission. H. TORGERSEN (introduced by C. H. Barrow), *Florida State University Radio Observatory*.—The detailed time structure of the Jupiter radiation has been studied with resolution less than a millisecond. The events are recorded on magnetic tape, at a tape speed of $7\frac{1}{2}$ in./sec and sections of interest are marked on the tape for future reference. These sections are studied later by an oscilloscope and are photographed with a recording camera having a wide range of film speed. A mechanical scanner has been designed for examining sections of tape corresponding to 25 msec of time. The output from this may be fed to the oscilloscope or to a frequency spectrum analyzer. Two channels of information can be studied simultaneously; these have been used to investigate left- and right-hand polarized components of the Jupiter radiation at 16 and 18 MHz. Within the frequency range of the present