spectral resolution ~9Å. On one night, spectra were obtained covering the region 3600–7100Å and on two nights time-series of spectra including Hα (30 spectra, Δt ~ 3 mins) were obtained. The spectra are dominated by the Balmer series in emission and broad emissions due to Fe II with blue-shifted absorptions. Analysis of the time series shows pronounced changes in the profile of Hα occurring on a time scale of a few minutes. The development of the nova spectrum during this period will be discussed.

Periodic Fluctuations in Continuum Near-IR Solar Intensity and CO Absorption by T. A. Clark and D. A. Burrell, University of Calgary

Power spectral analysis of spectra obtained during the monitoring of the near-IR (1700–3000 cm⁻¹) intensity of the quiet solar surface through a 54-arcsec aperture with a rapid-scanning Michelson interferometer has revealed significant periodic fluctuations with periods of 183, 213, 284, and 334 s. Two regimes are apparent in the data when wavelength dependence of amplitude is examined.

1) The periodicity at 284 s (and a weaker effect at 213 s) is strong only over a wavenumber range covered by the fundamental solar CO band absorption. Significant “five-minute” oscillations have previously been reported in an individual CO line by Noyes and Hall (Astrophys. J., 176, L89, 1972) and such oscillations apparently reflect physical changes close to the temperature-minimum region of the solar atmosphere.

2) Continuum fluctuations over the measured spectral range are detected at 183 and 334 s, the former value agreeing with the theoretically predicted acoustic cut-off frequency of the solar atmosphere. Phase shifts between fluctuations at different wavelengths, and hence different solar depths, at these frequencies indicate moving solar waves with a velocity of 0.14 km s⁻¹ in the lower solar atmosphere.

The Cyanogen Abundance of Comets by Jeremy B. Tatum and Mary I. Gillespie, University of Victoria

Results of calculations are presented that will enable an observer to convert absolute measurements of the radiance of the violet CN bands in a cometary spectrum to column densities of CN molecules. An intensity minimum of CN near perihelion is predicted.

CNO Cycle in Convective Regions by H. Falk and R. Mitalas, University of Western Ontario

In a convective region the elements participating in the CNO cycle are never in nuclear equilibrium. At best a steady state can be reached. To obtain an accurate distribution of energy release by the CNO cycle in a convective region, the energy generation must be written as an explicit function of ¹²C, ¹³C, ¹⁴N, ¹⁵N, ¹⁶O and ¹⁷O mass fractions, each of which must be constant in the convective region. These mass fractions are determined by physical conditions throughout the whole convective region. Stellar models illustrate these ideas.

Absorption Spectra of Quasars by Y. P. Varshni, University of Ottawa

The plasma-laser star (PLS) model for quasars (Varshni, Bull. Am. Astron. Soc., 6, 213, 308, 1974; Astrophys. Space Sci., 37, L1, 1975; 46, 443, 1977) is applied to explain the absorption spectra of quasars. The following topics are briefly reviewed (a) Shell stars, especially γ Cas. The role of metastable states. He I λ3889. (b) Multiply-excited states of atoms (and ions) which lie above the first ionization potential, especially the Wu states