roughly similar to the intensities in Cyg A, but with considerably weaker [O II], somewhat weaker [S II], and considerably stronger [O III] 4363, indicating that either T or N_e is significantly higher in the O^+ emitting regions of these four broad-line radio galaxies. The [Ne V] and [Fe II] lines are strong in all of them. None of them show the broad Fe II features that are observed in most broad-line Seyfert galaxies. The [S II] lines indicate densities in the range $10^3$ cm$^{-3}$ < N_e < $10^4$ cm$^{-3}$. Possible energy input and ionization mechanisms are discussed.

29.06.10 Electron Temperature of NGC 1052. A. T. KOSKI & D. E. OSTERBROCK, Lick Observatory, Board of Studies in Astronomy and Astrophysics, University of California, Santa Cruz. - Spectrophotometric scans of the nucleus of the elliptical galaxy NGC 1052 were obtained with the Lick Observatory image-dissector scanner at the cassegrain focus of the 3 m. telescope. The spectrum of NGC 1052 which has strong emission lines of H I, [S II], [O III] in the wavelength range $\lambda$ 4000 Å to $\lambda$ 5200 Å in the rest frame of the galaxy was compared with scans of the elliptical galaxy NGC 584 which has no observable emission lines. This comparison galaxy has approximately the same absorption-line spectral type, ellipticity and redshift as NGC 1052. The [O III] emission-line ratio I(4959) + I(5007)/I(4363) in NGC 1052 was measured to be about 20, which corresponds to an electron temperature T_e ~ 35,000 K in the low-density limit. Given the known strength of [O II], this limit is probably applicable, and the high temperature probably indicates shock-wave heating is important in NGC 1052.

29.07.10 Detection of Wavelength Dependence of Optical Polarization in Markarian 23 and Markarian 501. K. Borkowski, S. Tapia and M. Terenghi, Univ. of Arizona. - The highly condensed nuclei of the galaxies Markarian 23 and Markarian 501 exhibit continuous spectra, resembling BL Lac (Ulrich et al., 1975, Ap. J., 269, 261). We have obtained numerous observations of linear polarization in the nuclear region of these two galaxies with the following main results. a) The amount and position angle of polarization in Markarian 23 is variable in the fashion observed in classical BL Lacertae objects, although the polarization observed during the last two years ranges between 1 and 7% only. b) The percentage of polarization in Markarian 501 is slightly variable, ranging between 2 and 4%. The position angle appears to be constant at about 160 degrees. It is interesting to note that the position angle of polarization in Markarian 501 coincides approximately with the major axis of the galaxy. c) Repeated observations in five bands (between 8000 and 3300 Å) show a moderate increase of the linear polarization toward short wavelengths in both objects; the wavelength dependence persists through the variations of the polarization. Observations of optical polarization obtained in other BL Lacertae objects will be discussed.

29.08.10 Models of Star Formation in Markarian Galaxies. J. F. Wuchter, Hale Obs.-Caltech. - A broad band UBV photoelectric survey of a complete sample of non-Seyfert Markarian galaxies has been completed. Computer models including both stellar and gaseous emission are developed to explain the spectroscopic and photometric properties of these galaxies. The distribution of galaxies in the color-luminosity plane is studied with respect to the "flashing galaxy" hypothesis (Searle, Sargent and Bagnulo 1973, Ap. J., 172, 427).

29.09.10 Absorption Lines in QSOs and the Line-Locking Hypothesis. G. BURBIDGE and M. BURBIDGE, Univ. of Calif., San Diego. - The multiple absorption-line redshift systems found in some QSOs are most likely to arise in gas associated with the QSOs. In addition to the distribution of such redshift systems, the comparison of systems with large and small values of $\delta_{\text{em}} - \delta_{\text{abs}}$, and other spectroscopic arguments, the main argument for the absorption lines being associated with the QSOs is the occurrence of several striking coincidences in the ratios of the redshift systems. As examples, several different observers found such coincidences in PKS 0237-23, and Strittmatter et al. (Ap. J., 183, 767, 1973) found them in 1331+170. Mushotsky et al. (Ap. J., 174, 7, 1972) discussed a mechanism for radiation pressure driving an unstable outflow of gas; certain preferred velocities of outflow can occur where there are regions of strong wavelength gradients in the radiative flux. Thus, coincidences of the sort observed could be caused in this way; a strong absorption line in one redshift system will overlap a different absorption line or ionization edge in another redshift system. We have compiled ratios between (1 + z) for all the well-established redshift systems in 34 objects and show that there is a good correspondence between these ratios and ratios of wavelengths of strong spectral features. We present this empirical evidence for "line-locking" as histograms and a table, and discuss future tests of the hypothesis.