multiplication by the ratio of the RR to LL visibility on the Green Bank-VLA baseline, and assuming the R-L phase difference for Green Bank was constant.

The distribution of linearly polarized flux of each of these objects exhibits some structure on a milliarcsecond scale, though the total intensity maps are nearly unresolved. Full polarization maps of each of these sources will be presented and discussed. This research was supported by grants from the NSF and a grant from NASA administered by the AAS.

31.04
Optical Polarimetry of BL Lacertae Objects and Violent Variable Quasars

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Multiwavelength optical polarimetry data were obtained on two dozen BL Lacertae objects and optically violent variable quasars between November 1981 and June 1983. The data indicate that a substantial fraction of these objects exhibit wavelength-dependent percentage polarization, while only a few show wavelength-dependence in the plane of polarization. Approximately one-third of these sources had $P \geq 25\%$ at some time. Our data also confirm a number of sources as having restricted or nearly-restricted planes of polarization. For 3C 345 the mean plane of polarization is aligned with the small-scale high-frequency VLBI radio structure.

31.05
Multifrequency Radio Observations of Four BL Lacertae Objects

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We present long term broadband radio observations of four BL Lacertae objects (0133+476, 0235+164, 1749+096, and 2131-021) which exhibit highly variable linear polarization at 2.7 GHz. We examine their polarization variations and spectral evolution and find little correlation between the polarization and flux density fluctuations. These objects have been observed at 2.7, 7.9, 15.5, 31.4, and 89.6 GHz since 1973 as part of an extensive ongoing investigation into the broadband radio evolution of ∿100 compact extragalactic sources.

In general the linear polarization at 2.7 GHz varied on shorter timescales than the total flux density, with no strong temporal correlation. Since the polarization variations are undersampled, a detailed comparison of the observations with theoretical models is not practical. However, simple single or double component models appear inconsistent with the overall features of the variations - suggesting that the sources consist of multiple components.

We examine the spectral evolution of selected outbursts and discuss the wavelength dependence of the outburst amplitude. Following Jones et al (1981, Ap.J., 243, 97) we classify the outburst evaluation as being dominated by changes either in source structure or scale size. No clear examples of a change in electron energy spectra are found.

31.06
X-Ray Induced Stellar Winds: A Mass Supply for QSO's ?

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The standard black hole accretion model for producing the energy output in QSO's requires a substantial source of mass as fuel -- about 1 $M_\odot$/yr for a 10^{46} ergs/s QSO. We have previously suggested that such a mass source may be provided by the effects of the high X-ray fluxes upon stars within a parsec of the QSO nucleus. Such fluxes will heat the outer atmosphere of a star, causing it to evaporate and form a wind, thus releasing mass that may flow onto the central black hole in a "feedback mechanism".

We have hydrodynamically modeled this X-ray induced wind, considering Compton heating, photoelectric heating, and bremsstrahlung cooling in a spherically symmetric flow. Resonance line cooling is trapped in the flow and quenched. The X-ray induced wind hypothesis may provide a substantial source of mass when applied to a typical central star cluster of 10^9 stars, 1 pc in diameter with 1-2% red giants. The black-hole induced cusp in the star distribution raises the mass loss rate dramatically.

31.07
A Flare in the Optical Spectrum of 3C 273

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Flaring has been observed in 3C 273 in the BVRI spectrum during the month of January 1983. The increase in luminosity is especially pronounced at longer wavelengths and amounts to as much as half a magnitude increase in brightness over quiescent values. These observations complement and are consistent with similar observations in the millimeter to IR made at about the same time. They support the notion that the emission over a frequency range of millimeter to optical originates in the same region of the source, and that the flare propagates to longer wavelengths while decaying at shorter wavelengths.

31.08
The Optical Polarization Properties of the Quasar 3C 345

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We present optical (UBVRI) polarimetric and photometric observations of the highly polarized quasar 3C 345. Nightly observations were made over a period of ∿one week spaced at intervals of ∿2 months from February 1983 to June 1984 with the UCSD/U. Minn. 1.5-m telescope on Mt. Lemmon, Arizona. Photometric and polarimetric variations were observed to be small on a time scale of days (Δmag < 0.2, $\Delta P < 3\%$, $\Delta\theta < 10^\circ$) whereas substantial monthly variations were seen. 3C 345 was very active during this period, dimming from a V magnitude of 14.8 (Feb 83) to 16.5 (Jan 84). This spans nearly its entire magnitude range observed since 1970.

The polarization properties of 3C 345 are typified by high fractional polarization (5-35%) and strong wavelength dependence of the fractional polarization (average $P(U)/P(I) \sim 2/3$). The degree of wavelength dependence is variable but is always in the same sense (higher fractional polarization at longer wavelengths in the optical regime). There is no apparent correlation between the degree of wavelength dependence and either the fractional polarization, brightness, or optical spectral index. Little