line equivalent widths and continuum luminosities are the same. Given the broad bases on the emission lines, the narrow-lined QSOs do not seem to be "pole-on" QSOs, nor super-luminous Seyfert 2 galaxies. In addition, in the case of one of the two new objects studied here, we are able to rule out the possibility that the QSO is really a lower luminosity Seyfert 1.5 galaxy whose brightness has been amplified by gravitational lensing.

The narrowness of the emission lines in these objects allows accurate measurement of the weak intercombination lines which Shields has suggested can be used to determine the C/N/O abundance ratio. The C III 1909 line strength is found to be normal in three of the four narrow-lined QSOs for which adequate data are available; the one narrow-lined object in which this line turned out to actually be an Fe III multiplet is abnormal.

54.03
1928+738: A Superluminal Source With Large Scale Structure

K.J. Johnston, R.S. Simon (NRL), A. Eckart, P. Biermann, C. Schalinski, A. Witzel (MPIfR), and R. G. Strom (SRZM)

The quasar 1928+738 has been mapped with resolutions of 1.2 and 30 arc seconds at 20 and 49 cm wavelengths, respectively, and displays two-sided radio structure which extends up to 40 arc seconds on either side of the compact core along a position angle close to 0 degrees. The redshift of this object (0.3) would indicate that the overall linear size of this emission is 235 h^{-1} kpc (H_o = 100 h^{-1} km s^{-1} mpc; q_o = 0.05). The core of this radio source has been reported to display apparent superluminal motion which suggests that the small scale structure is aligned within 12.5 degrees of the line of sight to the source. If the large scale structure is also aligned at this angle, the deprojected size is just over 1 Mpc. As this is unlikely, the large scale structure is probably aligned to the line of sight at a considerably different angle than that predicted by the superluminal motion of the milliarcsecond structure. Comparison of the large scale structure of 1928+738 with other superluminal sources indicates that large scale symmetrical structure with two large radio lobes placed on either side of the compact emission is a common phenomenon among these objects.

54.04
VLBI Observations of Three Quasars Using an Earth-orbiting Radio Telescope

R. P. Linfield, G. S. Levy, J. S. Ulvestad, C. D. Edwards, (JPL/Caltech), C. H. Ottenhoff (TRW)

VLBI observations at 2.3 GHz were conducted in July and August 1986, using a 4.9 m. radio telescope in earth orbit (part of the Tracking Data and Relay Satellite System) and ground telescopes in Australia (the NASA 64 m. diameter antenna at Tidbinbilla) and Japan (the ISAS 64 m. diameter antenna at Usuda). The three QSO's observed were 1510-089, NRAO 530 (1730-130), and 1741-038. The maximum projected baseline obtained during the experiment was 1.4 earth diameters, on NRAO 530, with baselines greater than one earth diameter obtained on the other two sources as well. All three sources were detected on all baselines. Fringe visibilities for the maximum projected baselines were 0.15 (1510-089), 0.05 (NRAO 530), and 0.50 (1741-038). The total coherence of the system, including local oscillator transfer from a frequency standard on the ground to the satellite was 84% for 700 seconds. This experiment demonstrates the technical feasibility of a dedicated orbiting VLBI mission, such as QUASAT.

54.05
Two-Dimensional Models of QSO Broad-Line Clouds

P. S. Petersen and R. C. Puetter

Two dimensional spherical models of QSO broad-line clouds have been constructed. Each cloud is assumed to be illuminated from one side by a power-law radiation source. The clouds were assumed to be isothermal and isobaric. A 5 level plus continuum model of the hydrogen atom was solved under the local escape probability approximation using fully 3-dimensional escape probabilities.

We found that purely geometrical effects in QSO clouds strongly affect cloud properties, including total emitted line intensity (and hence deduced covering factor), line ratios, and line profiles (and hence the inferred cloud ensemble dynamics and the symmetry of the ensemble geometry). Aside from geometry influenced changes in internal structure of individual clouds and dependence of emitted radiation on angle, one of the most important effects of different cloud shapes is "foreshortening". These effects, i.e. foreshortening (which is most pronounced for slab clouds) and geometry dependent internal changes, can significantly influence the shape of broad-line profiles. In particular, spherically symmetric ensembles of spherical clouds in radiatively driven outflow show nearly symmetric Lyα profiles despite a 30 to 1 front-to-back emission anisotropy in Lyα in the individual clouds.

Effects of cloud shape and ensemble geometry on the produced line ratios, line strengths, and line profiles will be discussed in detail.

54.06
Superluminal Motion in the Quasar 3C 395

R.S. Simon, J. Hall, K.J. Johnston, J.H. Spencer, J.A. Waak
(Naval Research Laboratory)

We have recently confirmed that the quasar 3C 395 is a superluminal radio source, based on a third epoch VLBI image of the core. The core of 3C 395 is dominated by three components:

(1) A bright, unresolved component to the northwest, almost certainly the active center of 3C 395. It has apparently brightened by about 0.4 Jy between 1983.3 and 1985.4, from 0.6 Jy to 1.0 Jy.

(2) A moderately resolved component 15.8 +/- 0.2 mas to the southwest along position angle 118 degrees. The position of this component relative to the active center has changed by less than 0.2 mas in 6 years. The flux density of this component has remained nearly constant over the past 6 years.

(3) A component moving rapidly away from the active center towards component (2) with a velocity of 0.7 +/- 0.1 mas per year. At the distance of 3C 395, this corresponds to an apparent velocity of ~ 10c for H(0) = 100 km/s/Mpc and q(0) = 0.05. The flux density of this component has remained constant between 1983.3 and 1985.4.

3C 395 is thus seen to be unique among the dozen or so superluminals, in that it has a superluminal component moving between two relatively stationary components. If the (highly variable) center of activity in 3C 395 were to fade out, the other two components in 3C 395 would be seen to be contracting superluminally!

54.07
Low Frequency Cutoffs in the Spectra of Radioquiet Quasars

R. Antonucci (ST ScI), R. Barvainis (NRAO)

ABSTRACT. Radio-quiet and normal radio-loud quasars have very similar spectral properties in the ultraviolet, optical and near infrared regions, but their radio powers differ by several orders of magnitude. Somewhere between the near infrared and the radio their