25.12 Images and Spectra of the QSO Markarian 1014: The Host Galaxy and Extended [O III] Emission. J. W. MacKENTY, and A. STOCKTON, Inst. for Astronomy, Univ. of Hawaii.--We have obtained spectra and CCD images of the extended structure surrounding the low redshift QSO Markarian 1014. Stellar absorption lines indicative of an admixture of early- and late-type stars are present at the same redshift as that of the QSO nucleus. Images in continuum light show a spiral-like, asymmetric structure which extends more than 90 kpc (H_o = 75, q_o = 1/2). Images in the light of [O III] show an extremely complex structure which is poorly correlated with the continuum structure.

We interpret these observations as evidence for a large scale perturbation of the galaxy, perhaps the result of a recent interaction or merger.

25.13 High Resolution Maps of the Quasars 3C48, 3C147, 3C309.1, 3C380, and 3C454.3 Using 90 cm VLBI, R. S. SIMON, NRL - Five quasars (3C48, 3C147, 3C309.1, 3C380, and 3C454.3) have been mapped with 20 milli-arcsecond resolution using Very Long Baseline Interferometry at a frequency of 329 MHz. These maps, made with the most extensive low-frequency VLBI observations to date, are the first reliable, high dynamic range maps made at this frequency, and reveal extremely complex source structure in four of these sources. All five of the objects have asymmetric structure that can be interpreted in the "core-jet" picture of compact extragalactic radio sources. The jets observed in these objects are not straight, but bent; three of these quasars (3C48, 3C147, and 3C309.1) have bends in their structure greater than 90 degrees, on scales of 1-10 kpc. R.S. Simon acknowledges support as an NRC-NRL Cooperative Research Associate.

25.14 Structure Variations in the Nucleus of NGC 1275 at 5 GHz, S.C. UNWIN, Caltech. We have observed the radio core of the Seyfert galaxy NGC 1275 (3C 84) with a six-station VLBI network. Comparing this hybrid map with one made 2.7 yr earlier shows that substantial changes have occurred. The core has more than doubled in brightness, indicating that it remains the most active radio-emitting region, and the origin of the steady increase in total flux density. However it is still a relatively weak feature on the maps, and remains self-absorbed at 5 GHz and below, as 10-GHz maps show a similar increase in core brightness. The smoothly-extended southern ('jet') component has divided into two features, both of which are resolved, and the source has become basically a non-collinear triple. No emission is detected on the opposite (northern) side of the core above a level of $\approx$2 %, so the 'jet' is strongly one-sided. The overall size of 3C 84 has not changed significantly, but it is consistent with the reported 0.4 c expansion rate at 10 GHz. This work is supported by National Science Foundation grant AST 82-10259.

25.15 Optical Polarization of Seyfert Galaxies, R. R. J. ANTONUCCI, NRAO. It has been shown by Stockman, Angel and Miley that in low polarization quasars the position angle of optical polarization shows a strong tendency to align with the associated radio structure axis. Here that study is extended to Seyfert galaxies, and it is shown that the Seyfert Type 1 objects appear to show the quasar alignment effect. However, the Seyfert 2 polarizations are perpendicular to the radio axes.

The polarization of the brightest and best observed Seyfert 2, NGC 1068, has historically been attributed to Rayleigh scattering. This was based partially on a decrease in continuum polarization with increasing wavelength. New, high resolution spectropolarimetric observations (J. S. Miller and R. Antonucci) reveal that this was actually due to wavelength-dependent dilution of nuclear light by starlight. The true nuclear polarization appears to be a very high and wavelength-independent 16%. G. D. Schmidt and J. S. Miller had previously obtained excellent spectropolarimetry data on the Seyfert 1 galaxy NGC 4151, concluding that the nuclear continuum polarization was around 3%, independent of wavelength. Electron scattering of nuclear light by a geometrically thin disk could produce a low, wavelength-independent polarization such as that observed in NGC 4151. A geometrically thick disk could produce high wavelength-independent polarization as seen in NGC 1068.

25.16 Superluminal Motions in 3C120, R. C. WALKER, J. M. BENSON, NRAO, S. C. UNWIN, AND G. A. SEIELSTAD, CIT.

Superluminal motions were first identified in the radio galaxy, 3C120, between 1972 and 1974. VLBI monitoring observations between that time and 1981 showed that the parsec-scale structure of the radio source changes rapidly but revealed only one convincing epoch of superluminal expansion. In 1981 the observations were modified so that data was obtained every 4 months at a frequency of 5 GHz with VLBI arrays consisting of between 5 and 11 telescopes. The maps and results to date from those observations will be presented. The source has typically been resolved into a "core" to the east and up to three well defined knots at any given time, all of which are moving away from the core. Each of the knots is first seen as a brightening of the core and then fades as it moves away from the core. Knots seen at different times can have different apparent speeds although it is not yet clear whether all knots seen at one time move at the same speed. The maps also give evidence for the presence of structures at low flux density levels beyond the range over which the superluminal features have been followed.

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25.17 Beyond the 3C 120 Superluminal Radio Jet, J. M. BENSON, NRAO, R. C. WALKER, NRAO, G. A. SEIELSTAD, OVRO, S. C. UNWIN, OVRO. We present VLBI and VLA maps of the radio emission from the superluminal radio source 3C 120 (z = 0.03). These maps display radio structure