Further analysis of the objects dominated by gravitational motion suggests that the NLR velocity field is partly but not completely confined to the plane of the galaxy. The [OIII] FWHM correlate more strongly with bulge luminosity than with total luminosity, and this relation closely matches the Faber Johnson relation, but with an offset to slightly lower [OIII] velocities. Morphologically disturbed galaxies are found to have broader [OIII] lines, and a correlation between degree of disturbance and offset from the Faber Johnson law converges on zero offset for fully disturbed galaxies. The virial relations all become weaker for [OIII] linewidths measured lower in the profile. While this may imply greater influence by the central source, it may also indicate a deepening nuclear potential at smaller radii. A reassessment of the radio luminosity vs [OIII] linewidth relation shows that part of its strength derives from a correlation between radio luminosity and bulge luminosity. While interesting, the physical origin of this correlation is not clear.

Finally, analysis of Seyfert global mass to light ratios using the Fisher Tully relation suggests a systematic shift to lower M/L ratios, possibly indicating statistically enhanced star formation in Seyferts.

12.05

Extinction in MgII Broad Absorption Line QSOs

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About 10% of all QSOs show broad absorption features of high ionization species such as CIV and SiIV. About 15% of these broad absorption line (*"BAL") QSOs also show absorption features due to MgII and other low ionization species. These MgII BAL QSOs have considerably redder continuum shapes than do the majority of BAL QSOs.

In this study, a composite spectrum of several MgII BAL QSOs was de reddened with a variety of standard extinction models found in the literature. For two plausible models, amounts of extinction were found which caused the de reddened spectrum to match the spectral shape of high ionization BAL QSOs and non-BAL QSOs. If the reddening is indeed due to dust, these results provide strong constraints on the type and amount of dust that may be present in the region of the MgII BAL QSOs. Also, presence of the suggested amounts of dust would result in a substantial depression of the received flux from these objects over the broad photometric passbands; this depression implies that these objects may be significantly underrepresented in magnitude limited surveys.

A sample of IRAS-selected QSOs which contains 3 Mg II BAL QSOs was compared to other QSOs from the PG survey for which IRAS data was available. The IRAS sample was found to be drawn from different populations from the general PG sample at a high level of significance. The two successful extinction laws from the earlier comparison were then used to de reddened the IRAS-selected sample. Neither extinction law reduced the significance of the difference between the IRAS-selected and general PG samples. The extinction rules that can account for the reddening of MgII BAL QSOs cannot, by themselves, account for the much redder colors of the IRAS-selected sample. Moreover, reddening by dust may be responsible for the large infrared to optical flux ratios observed in the latter sample.

12.06

Infrared Nuclei in Nearby Powerful Radio Galaxies: Evidence for Hidden Quasars?

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IR imaging can provide a crucial test for some of the "grand unified schemes" for AGNs, and in particular the unification of quasars and powerful radio galaxies proposed by Barthel (1989, ApJ 336, 606). Direct imaging in the L' (3.7µm) band, where the host galaxy starlight makes an insignificant contribution, can reveal an obscured central source, ostensibly a quasar-like object, if one is indeed present. Such an object was detected in the prototypical powerful F-R type II radio galaxy Cygnus A (3C 405) by Djorgovski et al. (1991, ApJL in press); this detection also provided the first direct estimate of the extinction towards such a hidden active nucleus, i.e., A_v ~ 50^m, indicating an extinction-corrected luminosity typical for the PG quasars in the same redshift range. We have now detected similar, unresolved IR nuclei in several other powerful, low-z radio galaxies, coincident with their radio cores. The most prominent case is the nucleus of Perseus A (3C 84), followed by the nucleus of M87 (3C 274, Virgo A), 3C 236, and 3C 264; no obvious L'-band nuclei were detected in 3C 123, 3C 310 and 3C 338 (NGC 6166). We will present imaging and photometry of these objects, and the analysis of their spectral energy distributions over a wide range of frequency, including the extinction estimates. A search for broad emission lines using IR spectroscopy is now pending, and its results may also be presented at the meeting.

12.07

Near-Infrared Spectra and Classification Diagnostics of Seyfert Galaxies

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In this second paper of the series, observational results of our spectroscopic survey of Seyfert galaxies in the near-infrared are presented, and the potential for using emission line ratios in this spectral region as a classification diagnostic tool is examined. Near-infrared CCD spectra, which cover the range λ7000-10000 at nominal resolution FWHM ~ 12Å, of sixteen additional Seyferts and two starburst galaxies were obtained with the Lick Observatory 3-m Shane telescope. Relative emission-line intensities from these observations, in combination with measurements from our first paper (Osterbrock, Shaw & Veilleux) and those of Morris & Ward as well as additional Lick observations and measurements of new, high signal-to-noise optical spectra of many of these objects, are used to study the diagnostic diagrams involving [S III] λ9069, 9531/Hα, [O II] λλ7320, 7330/Hα, [S II] λλ6716, 6731/Hα, and [O III] λλ8070/λ8422. Comparisons were made in these diagrams between observational data from the active galaxies and published measurements of H II region-like objects, as well as with predictions from simple one-component models calculated for the two types of objects. Our results suggest that diagnostic diagrams using near-IR lines such as [O II] λλ7320, 7330 and [S III] λ9069 promise to provide a powerful method in classifying emission-line galaxies. Furthermore, our interpretation of the relative intensities of these lines, based on various model predictions, implies that either heating mechanisms probably due to relativistic electrons in addition to photoionization, are present in active galactic nuclei (AGNs) or, perhaps less likely, the metal abundances may actually be lower than the solar value in these objects.

12.08

An Atlas of normal and active galaxies from IUE archive

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The aim of our Atlas is to provide a homogeneously extracted and co-added set of UV data of normal and active galaxies from the IUE observations in both the short and long wavelength ranges (when available) and to discuss their main properties, i.e., absorption and emission lines, and the statistical differences between the two groups.

A total of 433 good quality low resolution UV spectra of 145 spiral, irregular, compact, Seyfert (excluding Sy 1s; e.g., Filippenko, 1989, IAU Symp. n.134, p.495) and Starburst galaxies have been collected from the IUE archive. Among them, about 75% are ac-