Active Galaxies Newsletter	*An electronic publication dedicated to the observation and theory of active galaxies*
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From the Editor

The Active Galaxies Newsletter is produced monthly. The deadline for contributions is the last friday of the month. The Latex macros for submitting abstracts and dissertation abstracts are appended to each issue of the newsletter and are also available on the web page.

As always as editor of the newsletter I am very interested to hear any suggestions or feedback regarding the newsletter. So do not hesitate in emailing me your suggestions.

Many thanks for your continued subscription.

Rob Beswick

Abstracts of recently accepted papers

Exploring the disk-jet connection from the properties of narrow line regions in powerful young radio-loud AGNs

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We investigate the optical emission-line flux ratios of narrow-line regions, in order to determine whether the formation of AGN jets requires specific accretion conditions. We find that bright compact radio galaxies, which are powerful radio galaxies in the early stage of the jet activity, exhibit systematically larger flux ratios of [OI]λ6300/[OIII]λ5007 and smaller flux ratios of [OIII]λ5007/[OIII]λ4363 than radio-quiet (RQ) Seyfert 2 galaxies. Comparing the observed line ratios with photoionization models, it is found that the difference in the flux ratio of low- to high-ionization lines (e.g., [OI]λ6300/[OIII]λ5007) can be well understood by the difference in the spectral energy distribution (SED) of ionizing sources. Powerful young radio-loud (YRL) AGNs favor SED without a strong big blue bump, i.e., a radiatively inefficient accretion flow (RIAF), while RQ AGNs are consistent with the models adopting SED with a strong big blue bump, i.e., a geometrically thin, optically thick disk. These findings imply that the formation of powerful AGN jets requires the accretion disk with harder ionizing SED (i.e., a RIAF). We discuss the obscuring structure of YRL AGNs as a plausible origin of the difference in flux ratios of [OIII]λ5007/[OIII]λ4363.

Accepted by Astrophysical Journal

E-mail contact: kawakatu@th.nao.ac.jp,
preprint available at astro-ph/0812.1329

The host galaxies of Compact Steep Spectrum and Gigahertz-Peaked Spectrum radio sources

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I will review some of the developments in studies of the host galaxy properties of Compact Steep Spectrum (CSS) and GigaHertz-Peaked Spectrum (GPS) radio sources. In contrast to previous reviews structured around observational technique, I will discuss the host galaxy properties in terms of morphology, stellar content and warm gas properties and discuss how compact, young radio-loud AGN are key objects for understanding galaxy evolution.

Invited review at '4th Workshop on Compact Steep Spectrum and Gigahertz-Peaked Spectrum Radio Sources', to appear in AN

E-mail contact: jholt@strw.leidenuniv.nl,
preprint available at http://arxiv.org/abs/0812.2812

Three-Dimensional Simulations of Dynamics of Accretion Flows Irradiated by a Quasar

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We study the axisymmetric and non-axisymmetric, time-dependent hydrodynamics of gas that is under the influence of the gravity of a super massive black hole (SMBH) and the radiation force produced by a radiatively efficient flow accreting onto the SMBH. We have considered two cases: (1) the formation of an outflow from the accretion of the ambient gas without rotation and (2) that with weak rotation. The main goals of this study are: (1) to examine if there is a significant difference between the models with identical initial and boundary conditions but in different dimensionality (2-D and 3-D), and (2) to understand the gas dynamics in AGN. Our 3-D simulations of a non-rotating gas show small yet noticeable non-axisymmetric small-scale features inside the outflow. The outflow as a whole and the inflow do not seem to suffer from any large-scale instability. In the rotating case, the non-axisymmetric features are very prominent, especially in the outflow which consists of many cold dense clouds entrained in a smoother hot flow. The 3-D outflow is non-axisymmetric due to the shear and thermal instabilities. In both 2-D and 3-D simulations, gas rotation increases the outflow thermal energy flux, but reduces the outflow mass and kinetic energy fluxes. Rotation also leads to time variability and fragmentation of the outflow in the radial and latitudinal directions. The collimation of the outflow is reduced in the models with gas rotation. The time variability in the mass and energy fluxes is reduced in the 3-D case because of the outflow fragmentation in the azimuthal direction. The virial mass estimated from the kinematics of the dense cold clouds found in our 3-D simulations of rotating gas underestimates the actual mass used in the simulations by about 40 %. The opening angles ($\sim 30^\circ$) of the bi-conic outflows found in the models with rotating gas are very similar to that of the nearby Seyfert galaxy NGC 4151 ($\sim 33^\circ$). The radial velocities of the dense cold clouds from the simulations are compared with the observed gas kinematics of the narrow line region of NGC 4151.

Accepted by ApJ.

E-mail contact: rk@physics.unlv.edu,
preprint available at http://arxiv.org/abs/0812.3153

Meetings

IAU Symposium 267
Evolution of Galaxies and Central Black Holes: Feeding and Feedback

Rio de Janeiro, Brazil
10–14 August 2009

Webpage: `http://www.stsci.edu/institute/conference/iau267`
Email: `peterson@astronomy.ohio-state.edu`

It is now widely recognized that nuclear activity is an important ingredient in the evolution of galaxies. With the advent of techniques for estimating AGN black hole masses, even at large redshifts, and the availability of large quasar samples at all redshifts from Chandra, XMM–Newton, the Sloan Digital Sky Survey, and other surveys, the field has undergone transformational change. A major focus has become observational and theoretical investigation of nuclear activity in the context of the galactic environment, which can be described in terms of "feeding" and "feedback." AGN feeding is tightly correlated with redshift-dependent star formation in the host galaxy. AGN feedback, in the form of relativistic jets, massive winds, and intense radiation, has been invoked to solve a broad range of problems that arise in Cold Dark Matter-based models of galaxy formation: setting the critical mass scale for galactic bulges, regulating cooling in clusters, and shutting down star formation. Such feedback, feeding, and their mutual interaction might possibly account for the tight relationship between galactic bulge mass and central black hole mass

The purpose of the proposed symposium is to bring together researchers from different specializations to better define the current global landscape and to motivate new lines of research. The timing of this symposium is propitious: HST is expected to be in its first full cycle after SM4 refurbishment, and ALMA, JWST and LSST, will be on the near-term horizon.

Abstracts for proposed contributions are now being accepted at the IAU GA abstract server. Go to `http://www.astronomy2009.com.br` and select Abstract Submission. Deadline for submission of abstracts is 1 March 2009.

Scientific Organizing Committee:
Chair: Bradley M. Peterson (USA), Roberto Cid Fernandes (Brazil), Suzy Collin (France), Horacio Dottori (Brazil), Martin Elvis (USA), Laura Ferrarese (Canada), Timothy M. Heckman (USA), Guinevere A.M. Kauffmann (Germany), Stefanie Komossa (Germany), Paulina Lira (Chile), Alessandro Marconi (Italy), Hagai Netzer (Israel), Elaine M. Sadler (Australia), Rachel S. Somerville (USA), Thaisa Storchi-Bergmann (Brazil), Keiichi Wada (Japan), and Martin Ward (UK)