Active Galaxies Newsletter	*An electronic publication dedicated to the observation and theory of active galaxies*
No. 129 —December 2007	Editor: Rob Beswick (agnews@manchester.ac.uk)

Accepted Abstracts - Submitted Abstracts - Thesis Abstracts
Jobs Adverts - Meetings Adverts - Special Announcements

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

Deep-Survey Constraints on X-ray Outbursts from Galactic Nuclei

B. Luo[1], W. N. Brandt[1], A. T. Steffen[1], and F. E. Bauer[2]

[1] Department of Astronomy & Astrophysics, 525 Davey Lab, The Pennsylvania State University, University Park, PA 16802, USA
[2] Columbia Astrophysics Laboratory, Columbia University, Pupin Labortories, 550 W. 120th St., Rm 1418, New York, NY 10027, USA

Luminous X-ray outbursts with variability amplitudes as high as $\sim 1\,000$ have been detected from a small number of galactic nuclei. These events are likely associated with transient fueling of nuclear supermassive black holes. In this paper, we constrain X-ray outbursts with harder spectra, higher redshifts, and lower luminosities than have been studied previously. We performed a systematic survey of 24 668 optical galaxies in the *Chandra* Deep Fields to search for such X-ray outbursts; the median redshift of these galaxies is ~ 0.8. The survey spans 798 days for the *Chandra* Deep Field-North, and 1 828 days for the *Chandra* Deep Field-South. No outbursts were found, and thus we set upper limits on the rate of such events in the Universe, which depend upon the adopted outburst X-ray luminosity. For an outburst with X-ray luminosity $> 10^{43}$ ergs s^{-1} and a duration of 6 months, the upper limit on its event rate is $\sim 10^{-4}$ galaxy^{-1} yr^{-1}, roughly consistent with theoretical predictions. Compared to previous survey results, our harder-band and deeper survey suggests that the outburst rate may increase by a maximum factor of 10 when considering both obscured X-ray outbursts and redshift evolution from $z \sim 0$ to $z \sim 0.8$. Our results also suggest that the X-ray luminosity function for moderate-luminosity active galactic nuclei is not primarily due to stellar tidal disruptions.

Accepted by ApJ

E-mail contact: lbin@astro.psu.edu,
preprint available at http://arxiv.org/abs/0711.2517

The Evolution of AGN Host Galaxies: From Blue to Red and the Influence of Large-Scale Structures

J. D. Silverman[1], V. Mainieri[2], B. D. Lehmer[3], D. M. Alexander[4], F. E. Bauer[5], J. Bergeron[6], W. N. Brandt[3], R. Gilli[7], G. Hasinger[1], D. P. Schneider[3], P. Tozzi[8], C. Vignali[9], A. M. Koekemoer[1]0, T. Miyaji[1]1, P. Popesso[2], P. Rosati[2] and G. Szokoly[1]

[1] Max-Planck-Institut für extraterrestrische Physik, D-84571 Garching, Germany
[2] European Southern Observatory, Karl-Schwarzschild-Strasse 2, Garching, D-85748, Germany
[3] Department of Astronomy & Astrophysics, 525 Davey Lab, The Pennsylvania State University, University Park, PA 16802, USA
[4] Department of Physics, University of Durham, South Road, Durham, DH1 3LE, UK
[5] Columbia Astrophysics Laboratory, Columbia University, Pupin Labortories, 550 W. 120th St., Rm 1418, New York, NY 10027, USA
[6] Institut d'Astrophysique de Paris, 98bis Boulevard, F-75014 Paris, France
[7] Istituto Nazionale di Astrofisica (INAF) - Osservatorio Astronomico di Bologna, Via Ranzani 1, 40127 Bologna, Italy
[8] INAF - Osservatorio Astronomico di Trieste, via G. B. Tiepolo 11, 34131 Trieste, Italy
[9] Dipartimento di Astronomia, Universitá degli Studi di Bologna, Via Ranzani 1, 40127 Bologna, Italy
[1]0 Space Telescope Science Institute, 3700 San Martin Drive, Baltimore, MD 21218, USA
[1]1 Department of Physics, Carnegie Mellon University, Pittsburgh, PA 15213, USA

We present an analysis of 109 moderate-luminosity ($41.9 \leq \log\ L_{0.5-8.0\ \rm keV} \leq 43.7$) AGN in the Extended *Chandra* Deep Field-South survey, which is drawn from 5,549 galaxies from the COMBO-17 and GEMS surveys having $0.4 \leq z \leq 1.1$. These obscured or optically-weak AGN facilitate the study of their host galaxies since the AGN provide an insubstantial amount of contamination to the galaxy light. We find that the color distribution of AGN host galaxies is highly dependent upon (1) the strong color-evolution of luminous ($M_V < -20.7$) galaxies, and (2) the influence of ~ 10 Mpc scale structures. When excluding galaxies within the redshift range $0.63 \leq z \leq 0.76$, a regime dominated by sources in large-scale structures at $z = 0.67$ and $z = 0.73$, we observe a bimodality in the host galaxy colors. Galaxies hosting AGN at $z \gtrsim 0.8$ preferentially have bluer (rest-frame $U - V < 0.7$) colors than their $z \lesssim 0.6$ counterparts (many of which fall along the red sequence). The fraction of galaxies hosting AGN peaks in the "green valley" ($0.5 < U - V < 1.0$); this is primarily due to enhanced AGN activity in the redshift interval $0.63 \leq z \leq 0.76$. The AGN fraction in this redshift and color interval is 12.8% (compared to its 'field' value of 7.8%) and reaches a maximum of 14.8% at $U - V \sim 0.8$. We further find that blue, bulge-dominated (Sérsic index $n > 2.5$) galaxies have the highest fraction of AGN (21%) in our sample. We explore the scenario that the evolution of AGN hosts is driven by galaxy mergers and illustrate that an accurate assessment requires a larger area survey since only three hosts may be undergoing a merger with timescales $\lesssim 1$ Gyr following a starburst phase.

Accepted by The Astrophysical Journal

E-mail contact: silverma@phys.ethz.ch,
preprint available at http://arxiv.org/abs/0709.3455

Star formation in the hosts of GHz peaked spectrum and compact steep spectrum radio galaxies

A. Labiano[1,2], C. P. O'Dea[3] P. D. Barthel[2], W. H. de Vries [4,5] and S.A. Baum[6] Groningen), C. P. O'Dea (RIT), P. D. Barthel (U. Groningen), W. H. de Vries (U. California and LLNL), S.A. Baum (RIT) institute name(s) and address(es), your author number, for example:

[1] Departamento de Astrofísica Molecular e Infrarroja, Instituto de Estructura de la Materia (CSIC), Madrid, Spain
[2] Kapteyn Astronomical Institute, Groningen, The Netherlands
[3] Department of Physics, Rochester Institute of Technology, NY, USA
[4] University of California, Davis, CA, USA
[5] Lawrence Livermore National Laboratory, IGPP, Livermore, CA, USA
[6] Center for Imaging Science, Rochester Institute of Technology, Rochester, NY, USA

AIMS: Search for star formation regions in the hosts of potentially young radio galaxies (Gigahertz Peaked Spectrum and Compact Steep Spectrum sources).
METHODS: Near-UV imaging with the *Hubble Space Telescope Advanced Camera for Surveys.*
RESULTS: We find near-UV light which could be the product of recent star formation in eight of the nine observed sources, though other explanations are not currently ruled out. The UV luminosities of the GPS and CSS sources are similar to those of a sample of nearby large scale radio galaxies. Stellar population synthesis models are consistent with a burst of recent star formation occuring before the formation of the radio source. However, observations at other wavelengths and colors are needed to definitively establish the nature of the observed UV light. In the CSS sources 1443+77 and 1814-637 the near-UV light is

aligned with and is co-spatial with the radio source. We suggest that in these sources the UV light is produced by star formation triggered and/or enhanced by the radio source.

Accepted by Astronomy & Astrophysics.

E-mail contact: labiano@damir.iem.csic.es ,
preprint available at http://xxx.lanl.gov/abs/astro-ph/0701619

Atomic Hydrogen Properties of AGN Host Galaxies: HI in 16 NUclei of GAlaxies (NUGA) Sources

Sebastian Haan[1], Eva Schinnerer[1], Carole G. Mundell[2], Santiago García-Burillo[3], Francoise Combes[4]

[1] Max Planck Institut für Astronomie (MPIA), Königstuhl 17, 69117 Heidelberg, Germany

[2] Astrophysics Research Institute, Liverpool John Moores University, Twelve Quays House, Egerton Wharf, Birkenhead, CH41 1LD, UK
[3] Observatorio Astronomico Nacional (OAN)-Observatorio de Madrid, Alfonso XII, 3, 28014-Madrid, Spain
[4] Observatoire de Paris, DEMIRM, 61 Av. de l Observatoire, 75914-Paris, France

We present a comprehensive spectroscopic imaging survey of the distribution and kinematics of atomic hydrogen (HI) in 16 nearby spiral galaxies hosting low luminosity AGN, observed with high spectral and spatial resolution (resolution: $\sim 20''$, ~ 5 km s^{-1}) using the NRAO Very Large Array (VLA). The sample contains a range of nuclear types, ranging from Seyfert to star-forming nuclei and was originally selected for the NUclei of GAlaxies project (NUGA) - a spectrally and spatially resolved interferometric survey of gas dynamics in nearby galaxies designed to identify the fueling mechanisms of AGN and the relation to host galaxy evolution. Here we investigate the relationship between the HI properties of these galaxies, their environment, their stellar distribution and their AGN type. The large-scale HI morphology of each galaxy is classified as ringed, spiral, or centrally concentrated; comparison of the resulting morphological classification with AGN type reveals that ring structures are significantly more common in LINER than in Seyfert host galaxies, suggesting a time evolution of the AGN activity together with the redistribution of the neutral gas. Dynamically disturbed HI disks are also more prevalent in LINER host galaxies than in Seyfert host galaxies. While several galaxies are surrounded by companions (some with associated HI emission), there is no correlation between the presence of companions and the AGN type (Seyfert/LINER).

Accepted by AJ

E-mail contact: haan@mpia.de,
preprint available at http://arxiv.org/pdf/0710.2000

Special Announcements

Shape 2.0 now available

Date

There is a new release available of the astrophysical morpho-kinematic 3D modeling software *Shape*. It has a large number of important improvements. For most applications it is now completely independent of external software packages. Many modeling tools have been integrated right into *Shape*. Some of the new features are unique to *Shape* and the astrophysical modeling environment. Highly detailed models can now be obtained much more quickly and accurately. See the *ShapeSite* at "www.astrosen.unam.mxshape" for details and for downloading the software.

W. Steffen
Instituto de Astronomía
UNAM, Ensenada, Mexico

N. Koning
Space Astronomy Laboratory
University of Calgary, Canada

The Active Galaxies Newsletter is available on the World Wide Web. You can access it via the University of Manchester home page :- http://www.manchester.ac.uk/jodrellbank/∼agnews
If you move or your e-mail address changes, please send the editor your new address. If the Newsletter repeatedly bounces back from an address then that address is deleted from the mailing list.