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| Active Galaxies Newsletter | *An electronic publication dedicated to the observation and theory of active galaxies* |
| No. 120 — March 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.

**IMPORTANT CHANGES TO THE NEWSLETTER**

Please note that the web & email addresses for the Active Galaxies Newsletter has changed.

**THE NEW EMAIL ADDRESS IS: agnews@manchester.ac.uk**

**THE WEB-PAGE ADDRESS IS: http://www.manchester.ac.uk/jodrellbank/~agnews**

**A NEW SECTION FOR THE NEWSLETTER:**
*Submitted papers for discussion*

It has recently been suggested to me by one of the contributers and subscribers to the newsletter that a the inclusion of recently submitted, but not refereed papers, in the newsletter would be a useful addition. This section would allow authors to disseminate there new and exciting work earlier to the community and allow open discussion and feedback to the authors at an early stage. As such from the next issue the newsletter will be publishing abstracts, with associated web-links where the full paper can be downloaded, of submitted but not accepted papers. This will be an additional and separate section in the newsletter and clearly labelled. In addition to the abstract authors will be able to optionally include a short paragraph with additional comments regarding the work. In addition to appearing in the newsletter these contributions will also be posted on the Newsletter's web-pages promptly following their receipt.

It is hoped that this new section will be popular and useful to the subscribers and readers by allowing very prompt dissemination and hence discussion of new results amongst a targeted group of researchers. A LaTeX macro template for these new contributions will be available shortly from the webpages.

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

## Hot and cold gas accretion and feedback in radio-loud active galaxies

**M.J. Hardcastle[1], D.A. Evans[2] and J.H. Croston[1]**

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We have recently shown that X-ray observations of the population of 'low-excitation' radio galaxies, which includes most low-power, Fanaroff-Riley class I sources as well as some more powerful Fanaroff-Riley class II objects, are consistent with a model in which the active nuclei of these objects are not radiatively efficient at any waveband. In another recent paper Allen et al. have shown that Bondi accretion of the hot, X-ray emitting phase of the intergalactic medium (IGM) is sufficient to power the jets of several nearby, low-power radio galaxies at the centres of clusters. In this paper we combine these ideas and suggest that accretion of the hot phase of the IGM is sufficient to power *all* low-excitation radio sources, while high-excitation sources are powered by accretion of cold gas that is in general unrelated to the hot IGM. This model explains a number of properties of the radio-loud active galaxy population, and has important implications for the energy input of radio-loud active galactic nuclei into the hot phase of the IGM: the energy supply of powerful high-excitation sources does not have a direct connection to the hot phase.

Accepted by MNRAS

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preprint available at http://arxiv.org/abs/astro-ph/0701857

## An Investigation into the Effects of Luminosity on the Mid-Infrared Spectral Energy Distributions of Radio-Quiet Quasars

**S. C. Gallagher[1], G. T. Richards[2], M. Lacy[3], D. C. Hines[4], M. Elitzur[5], and L. J. Storrie-Lombardi[3]**

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We present an analysis of the effects of luminosity on the shape of the mid-infrared spectral energy distributions (SEDs) of 234 radio-quiet quasars originally presented by Richards et al. In quasars without evident dust extinction, the spectrally integrated optical and infrared luminosities are linearly correlated over nearly three decades in luminosity. We find a significant ($>\sim 99.99\%$ confidence) correlation between the 1.8–8.0$\mu$m spectral index and infrared luminosity that indicates an enhancement of the mid-infrared continuum with increasing luminosity. Coupled with strong evidence for spectral curvature in more luminous quasars, we conclude this trend is likely a manifestation of the 'near-infrared (3–5$\mu$m) bump' noticed in earlier quasar SED surveys. The strength of this feature is indicative of the contribution of emission from the hottest ($>\sim 1000$ K) dust to the mid-infrared spectrum; higher luminosity quasars tend to show more hot dust emission. Finally, the comparable distribution of bolometric corrections from the monochromatic 3$\mu$m luminosity as well as its lack of sensitivity to dust extinction as compared to the standard bolometric correction from $\nu L_{5100\mathring{A}}$ suggests that the former may be a more robust indicator of bolometric quasar luminosity. The close link between the power in the mid-infrared and optical and the effect of luminosity on the shape of the mid-infrared continuum indicate that considering mid-infrared emission independent of the properties of the quasar itself is inadequate for understanding the parsec-scale quasar environment.

Accepted by Astrophys. J.

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preprint available at http://arxiv.org/abs/astro-ph/0702272

## Jet-cloud collisions in the jet of the Seyfert galaxy NGC 3079

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We report the results from a six-year, multi-epoch very long baseline interferomertry monitoring of the Seyfert galaxy NGC 3079. We have observed NGC 3079 during eight epochs between 1999 and 2005 predominantly at 5 GHz, but covering the frequency range of 1.7 GHz to 22 GHz. Using our data and observations going back to 1985, we find that the separation of two of the three visible nuclear radio components underwent two decelerations. At the time of these decelerations, the flux density of one of the components increased by factors of five and two, respectively. We interpret these events as a radio jet component undergoing compression, possibly as a result of a collision with ISM material. This interpretation strongly supports the existence of jets surrounded by a clumpy medium of dense clouds within the first few parsecs from the central engine in NGC 3079. Moreover, based on recently published simulations of jet interactions with clumpy media, this scenario is able to explain the nature of two additional regions of ageing synchrotron material detected at the lower frequencies as by-products of such interactions, and also the origin of the kpc-scale super bubble observed in NGC 3079 as the result of the spread of the momentum of the jets impeded from propagating freely. The generalization of this scenario provides an explanation why jets in Seyfert galaxies are not able to propagate to scales of kpc as do jets in radio-loud AGN.

Accepted by MNRAS

E-mail contact: middelberg@astro.rub.de,
preprint available at http://arxiv.org/abs/astro-ph/0702481

## Metal enriched gaseous halos around distant radio galaxies: Clues to feedback in galaxy formation

**Michiel Reuland[1,2,3], Wil van Breugel[1,4], Wim de Vries[1], Michael A. Dopita[5], Arjun De[6], George Miley[3], Huub Röttgering[3], Bram Venemans[3], S.A. Stanford[1,2], Mark Lacy[7], Hy Spinrad[8], Steve Dawson[8], Daniel Stern[9] & Andrew Bunker[10]**

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We present the results of an optical and near-IR spectroscopic study of giant nebular emission line halos associated with three $z > 3$ radio galaxies, 4C 41.17, 4C 60.07 and B2 0902+3r. Previous deep narrow band Ly$-\alpha$ imaging had revealed complex morphologies with sizes up to 100 kpc, possibly connected to outflows and AGN feedback from the central regions. The outer regions of these halos show quiet kinematics with typical velocity dispersions of a few hundred km s$^{-1}$, and velocity shears that can mostly be interpreted as being due to rotation. The inner regions show shocked cocoons of gas closely associated with the radio lobes. These display disturbed kinematics and have expansion velocities and/or velocity dispersions >1000 km s$^{-1}$ . The core region is chemically evolved, and we also find spectroscopic evidence for the ejection of enriched material in 4C 41.17 up to a distance of ≈60 kpc along the radio-axis. The dynamical structures traced in the Ly$-\alpha$ line are, in most cases, closely echoed in the Carbon and Oxygen lines. This shows that the Ly$-\alpha$ line is produced in a highly clumped medium of small filling factor, and can therefore be used as a tracer of the dynamics of HizRGs. We conclude that these HizRGs are undergoing a final jet-induced phase of star formation with ejection of most of their interstellar medium before becoming "red and dead" Elliptical galaxies.

Accepted by Astron. J.

E-mail contact :" Wil van Breugel" wil@igpp.ucllnl.org, preprint available on astro-ph/0702753

## Anti-correlation between the mass of a supermassive black hole and the mass accretion rate in type I ultraluminous infrared galaxies and nearby QSOs

**Nozomu Kawakatu[1], Masatoshi Imanishi[1] and Tohru Nagao[1]**

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We discovered a significant anti-correlation between the mass of a supermassive black hole (SMBH), $M_{\rm BH}$, and the luminosity ratio of infrared to active galactic nuclei (AGN) Eddington luminosity, $L_{\rm IR}/L_{\rm Edd}$, over four orders of magnitude for ultraluminous infrared galaxies with type I Seyfert nuclei (type I ULIRGs) and nearby QSOs. This anti-correlation ($M_{\rm BH}$ vs. $L_{\rm IR}/L_{\rm Edd}$) can be interpreted as the anti-correlation between the mass of a SMBH and the rate of mass accretion onto a SMBH normalized by the AGN Eddington rate, $\dot{M}_{\rm BH}/\dot{M}_{\rm Edd}$. In other words, the mass accretion rate $\dot{M}_{\rm BH}$ is not proportional to that of the central BH mass. Thus, this anti-correlation indicates that BH growth is determined by the external mass supply process, and not the AGN Eddington- limited mechanism. Moreover, we found an interesting tendency for type I ULIRGs to favor a super-Eddington accretion flow, whereas QSOs tended to show a sub-Eddington flow. On the basis of our findings, we suggest that a central SMBH grows by changing its mass accretion rate from super-Eddington to sub-Eddington. According to a coevolution scenario of ULIRGs and QSOs based on the radiation drag process, it has been predicted that a self-gravitating massive torus, whose mass is larger than a central BH, exists in the early phase of BH growth (type I ULIRG phase) but not in the final phase of BH growth (QSO phase). At the same time, if one considers the mass accretion rate onto a central SMBH via a turbulent viscosity, the anti-correlation ($M_{\rm BH}$ vs. $L_{\rm IR}/L_{\rm Edd}$) is well explained by the positive correlation between the mass accretion rate $\dot{M}_{\rm BH}$ and the mass ratio of a massive torus to a SMBH.

Accepted by Astrophysical Journal

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preprint available at astro-ph/0702552

## What Can We Learn from the Smallest AGN?

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Quite a few things. In particular, reverberation mapping of NGC 4395, the lowest luminosity type 1 Active Galactic Nucleus (AGN, $L_{\rm bol} \sim 10^{40}$ erg/s) revealed a size of only $\simeq 1$ light hour for the C IV broad line region (BLR), which is by far the smallest BLR. This, together with a similar determination of a size of $\sim 200$ light days in a luminous quasar (Kaspi et al. 2007), suggests that the $R_{\rm BLR} \propto L^{1/2}$ relation holds over a range of $10^7$ in $L$. This relation was suggested to result from dust sublimation, which sets $R_{\rm BLR}$. This suggestion was beautifully confirmed recently by the dust reverberation results of Suganuma et al. (2006). The $R_{\rm BLR} \propto L^{1/2}$ relation implies that the broad lines width increases with decreasing luminosity according to $\Delta v \propto L^{-1/4}$. But, there is an observational cutoff at $\Delta v \simeq 25,000$ km/s, and thus below a certain threshold $L$ the BLR would not be detectable. Such objects constitute the so-called "true type 2" AGN (e.g. most FR I radio galaxies). The physical origin of the BLR gas is not established yet, but high quality Keck spectra of the H$\alpha$ profile in NGC 4395 rule out a clumped distribution, and indicate that the gas resides in a smooth flow, most likely in a thick rotationally supported configuration. The H$\alpha$ line also reveals extended exponential wings, which are well modeled by electron scattering within the BLR emitting gas. Such wings can be used as a direct probe of the BLR temperature and optical depth.

Review talk, to appear in "The Central Engine of Active Galactic Nuclei", ed. L. C. Ho and J.-M. Wang (San Francisco: Astronomical Society of the Pacific 2007)

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preprint available at http://arxiv.org/abs/astro-ph/0702577

## Low-luminosity extragalactic water masers towards M82, M51 and NGC 4051

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Sub-arcsecond observations using the Very Large Array (VLA) are presented for low-luminosity water maser emission in M82, M51, and NGC 4051. New maser features have been detected within the M82 starburst complex. They are largely associated with star-forming activity such as optically identified starburst-driven winds, H II regions, or the early phase of star formation in the galaxy. The water maser in M51 consists of blueshifted and redshifted features relative to the systemic velocity of the galaxy. The redshifted features are measured to the northwest of the nuclear radio source, while the location of the blueshifted counterpart is displaced by about 2" from the radio source. A small velocity gradient closely aligned with the radio jet is detected from the redshifted features. The redshifted maser most likely amplifies the background radio continuum jet, while

the blueshifted counterpart marks off-nuclear star formation in the galaxy. All of the detected maser features in the narrow-line Seyfert 1 galaxy NGC 4051 remain unresolved by new VLA observations. Due to the low luminosity of the maser, the maser excitation is not directly related to the active galactic nucleus.

Accepted by AJ, on 17 Oct 2006; to appear on AJ 133(2007),1176-1186

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## NGC 5548 in a Low-Luminosity State: Implications for the Broad-Line Region

**Misty C. Bentz[1], Kelly D. Denney[2], Edward M. Cackett[2,3], Matthias Dietrich[1], Jeffrey K. J. Fogel[3], Himel Ghosh[1], Keith D. Horne[2], Charles Kuehn[1,4], Takeo Minezaki[5], Christopher A. Onken[1,6], Bradley M. Peterson[1], Richard W. Pogge[1], Vladimir I. Pronik[7,8], Douglas O. Richstone[3], Sergey G. Sergeev[7,8], Marianne Vestergaard[9], Matthew G. Walker[3] and Yuzuru Yoshii[5,10]**

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We describe results from a new ground-based monitoring campaign on NGC 5548, the best studied reverberation-mapped AGN. We find that it was in the lowest luminosity state yet recorded during a monitoring program, namely $L_{5100} = 4.7 \times 10^{42}$ ergs s$^{-1}$. We determine a rest-frame time lag between flux variations in the continuum and the H$\beta$ line of $6.3^{+2.6}_{-2.3}$ days. Combining our measurements with those of previous campaigns, we determine a weighted black hole mass of $M_{\rm BH} = 6.54^{+0.26}_{-0.25} \times 10^7 M_\odot$ based on all broad emission lines with suitable variability data. We confirm the previously-discovered virial relationship between the time lag of emission lines relative to the continuum and the width of the emission lines in NGC 5548, which is the expected signature of a gravity-dominated broad-line region. Using this lowest luminosity state, we extend the range of the relationship between the luminosity and the time lag in NGC 5548 and measure a slope that is consistent with $\alpha = 0.5$, the naive expectation for the broad line region for an assumed form of $r \propto L^\alpha$. This value is also consistent with the slope recently determined by Bentz et al. for the population of reverberation-mapped AGNs as a whole.

Accepted by Astrophys. J.

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preprint available at astro-ph/0702644

## SDSS J1130+0058 an X-shaped Radio Source With Double-Peaked Low-Ionization Emission Lines: A binary Black Hole System?

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In this paper we study the object SDSS J1130+0058 which is the only AGN known to have both double-peaked low-ionization broad emission lines, and also X-shaped radio structures. Emission from an accretion disk can reproduce the double-peaked line profile of broad H$\alpha$, but not the radio structure. Under the accretion disk model, the period of the inner emission line region is about 230 years. Using a new method to subtract the stellar component from the data of the SDSS DR4, we obtain an internal reddening factor which is less than previously found. The implied smaller amount of dust disfavors the backflow model for the X-shaped radio structure. The presence of a Binary Black Hole (BBH) system is the most natural way to explain *both* the optical and radio properties of this AGN. Under the assumption of the BBH model, we can estimate the BBH system has a separation of less than 0.04 pc with a period less than 59 years, this may pose some problem to the BLRs sizes, still we conclude that the BBH model is favored on the basis of the present limited information.

Accepted by MNRAS

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preprint available at http://arxiv.org/abs/astro-ph/0702687

## Modeling time delays in the X-ray spectrum of the Seyfert galaxy MCG-6-30-15

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We propose a reflection model of the time delays detected during an exceptionally bright, single flare in MCG-6-30-15. We consider a scenario in which the delays of the hard X-rays with respect to the soft X-rays are caused by the presence of the delayed reflection component. We employ a model of the flare, which is accompanied by reprocessed emission. We consider two geometries/thermal states of the reprocessing medium: a partially ionized accretion disk surface and a distribution of magnetically confined, cold blobs. The reprocessing by cold blobs predicts positive time delays and a saturation in the time delay – energy relation, which is likely present in the data. The model requires a strong reflection component and relies on the apparent pivoting of the combined primary and reflected spectrum. The reflection by the ionized disk surface does not reproduce the observed delays. We discuss the relation between the two reflection scenarios and argue that they are both present in MCG-6-30-15.

ACCEPTED by Astronomy & Astrophysics on Feb 12th 2007

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available at http://arxiv.org/abs/astro-ph/0702685

## Simulations of multi-phase turbulence in jet cocoons

**Martin Krause[1] & Paul Alexander[1]**

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The interaction of optically emitting clouds with warm X-ray gas and hot, tenuous radio plasma in radio jet cocoons is modelled by 2D compressible hydrodynamic simulations. The initial setup is the Kelvin-Helmholtz instability at a contact surface of density contrast $10^4$. The denser medium contains clouds of higher density. Optically thin radiation is realised via a cooling source term. The cool phase effectively extracts energy from the other gas which is both, radiated away and used for acceleration of the cold phase. This increases the system's cooling rate substantially and leads to a massively amplified cold mass dropout. We show that it is feasible, given small seed clouds of order 100 $M_\odot$, that all of the optically emitting gas in a radio jet cocoon may be produced by this mechanism on the propagation timescale of the jet. The mass is generally distributed as $T^{-1/2}$ with temperature, with a prominent peak at 14,000 K. This peak is likely to be related to the counteracting effects of shock heating and a strong rise in the cooling function. The volume filling factor of cold gas in this peak is of the order $10^{-5}$ to $10^{-3}$ and generally increases during the simulation time.
The simulations tend towards an isotropic scale free Kolmogorov-type energy spectrum over the simulation timescale. We find the same Mach-number density relation as Krtsuk & Norman (2004) and show that this relation may explain the velocity widths of emission lines associated with high redshift radio galaxies, if the environmental temperature is lower, or the jet-ambient density ratio is less extreme than in their low redshift counterparts.

Accepted by MNRAS

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preprint available at http://arxiv.org/abs/astro-ph/0610332

# Abstracts of recently submitted papers

## Kinematics of the Broad Line Region in M81

**Nick Devereux**[1], **Andrew Shearer**[2]

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A new model is presented which explains the origin of the broad emission lines observed in the LINER/Seyfert nucleus of M81 in terms of a steady state spherically symmetric inflow, amounting to $\sim 4 \times 10^{-5} M_{\odot}/yr$. The emitting volume has an outer radius of ∼1pc, making it the largest broad line region yet to be measured, and it contains a total mass of $\sim 5 \times 10^{-2} M_{\odot}$ of ionized gas, leading to a very low filling factor of $\sim$ 3 x $10^{-9}$. Implications for the interpretation of broad emission lines in other active galactic nuclei are discussed.

SUBMITTED to ApJ. on Feb 23rd 2007

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DRAFT is available at http://astronomy.pr.erau.edu/M81v2.pdf

## SECOND ANNOUNCEMENT
## FROM PLANETS TO DARK ENERGY: THE MODERN RADIO UNIVERSE

The University of Manchester, UK
October 1-5, 2007

**Webpage:** `http://www.jb.man.ac.uk/mru2007/`
**Email:** `mru2007@jb.man.ac.uk`

Dear colleagues,

This is the second announcement of the conference "From Planets to Dark Energy: the Modern Radio Universe", organised by the University of Manchester and to be held October 1st-5th 2007 in Manchester, UK.

On-line registration is now open at: `http://www.jb.man.ac.uk/mru2007/`

**Conference Rationale:**

This meeting will focus on the current state of knowledge, as revealed by observations and theory, of the key science themes to be addressed by the Square Kilometre Array (SKA). The SKA will have of the order of a million square metres of collecting area and will achieve a spatial resolution better than 0.1 arcsecond at 1.4 GHz. With such a telescope, some of the major questions of our time can be addressed. What are dark energy and dark matter? What is the origin of the observed structure in the Universe? How did planets like the Earth form?

The location and timing of the meeting are deliberate; October 4th 2007 will be the 50th anniversary of the launch of Sputnik I and the radar detection of the Sputnik launch rocket by the 76-m (250-ft) Lovell telescope at Jodrell Bank Observatory. This meeting will therefore celebrate 50 years of the Space Age and the Lovell telescope with a review of the modern state of radio astronomy and the new horizons that the SKA will open.

**Invited reviews:**
Chris Carilli (USA), Jim Cordes (USA), Thiebault Damour (France), Andrea Ferrara (Italy), Bryan Gaensler (Australia), Guido Garay (Chile), Michael Kramer (UK), Steve Rawlings (UK), Frank Shu (Taiwan) and Kandu Subramanian (India).

**Invited Speakers:**
Xiang-Ping Wu (China), Ger de Bruyn (NL), Marcia Rieke (USA), John Conway (Sweden), Elaine Sadler (Australia), Francoise Combes (France), Bernard Schutz (Germany), Rick Jenet (USA), Phil Kronberg (Canada), Avinash Deshpande (India), Ewine van Dishoeck (NL), Jill Tarter (USA), Rob Fender (UK), Heino Falcke (NL), Angela Olinto (USA), Peter Wilkinson (UK), Richard Ellis (USA) and Richard Schilizzi (SKA).

**Scientific Organising Committee:**
Susanne Aalto (Sweden), Rustan Dagkesamanskiy (Russia), Phil Diamond (UK. Chair), Luigina Feretti (Italy), Steve Furlanetto (USA), Bryan Gaensler (USA), Vicky Kaspi (Canada), Luis Rodriguez (Mexico), Dick Manchester (Australia), Ravi Subrahmanyan (India), Richard Schilizzi (The Netherlands. Co-Chair), Steve Rawlings (UK), Alex Szalay (USA), Jill Tarter (USA) & Xiang-Ping Wu (China)

**Registration & Abstract submission:**

Registration and abstract submission is now open. Please register using the on-line registration form available at the conference website

The conference fee will be 250GBP. This fee will cover the costs of the conference, the publication of proceedings and the participation of delegates at the 50th anniversary celebrations of the first observations of the Lovell Telescope at Jodrell Bank Observatory.

Colleagues interested in attending and contributing to the Symposium are asked to register and submit a preliminary talk and/or poster title. Final talk and poster abstracts can be submitted after registration. The final deadline for abstracts will be July 15th 2007.

The size of this conference is strictly limited by the conference venue to 200 delegates. Only full registration will guarantee attendance, so we urge all interested people to register early.

**Venue & Accommodation:**

The conference will be held in the University of Manchester's conference venue, the Weston Building, which is situated in the city centre of Manchester. Manchester itself is a vibrant city with ample attractions and amenities for all visitors.

We have arranged block bookings of rooms for the duration of the meeting at the conference venue itself and at several other nearby hotels. All of these hotels are within a short walk of the conference venue. When booking accommodation please mention 'Jodrell Bank'.

Further information regarding the venue for the conference and specific details regarding the venue and accommodation is available on the conference website

**PROGRAM:**

In addition to invited talks, contributed papers (oral or poster) will be presented. The SOC will select contributions for oral presentation on the basis of the submitted abstracts. The details of the full program will be published near to the conference date.

**PROCEEDINGS:**

The contributions will be published as proceedings. Details will be given soon.

**Important Dates:**

- November 17 2006: First announcement
- February 15 2007: Second announcement; Registration open
- June 15 2007: Third and Final announcement
- July 15 2007: Registration and Abstract submission deadline
- July 31 2007: Final Conference Programme
- September 30 2007: Welcome reception
- October 1 2007: Conference Starts
- October 5 2007: Conference Ends

## FIRST ANNOUNCEMENT
## New Results in X-ray Astronomy

Leicester, UK
Wednesday, 18th July 2007

**Webpage:** `http://www.star.le.ac.uk/ukxra2007`

Continuing the series of annual one-day workshops on X-ray astronomy, this year's meeting will be held at the University of Leicester on Wednesday July 18th. The meeting will consist of contributed talks on the subject of 'New Results in X-Ray Astronomy', but there will be plenty of space for poster presentations. The closing date for registration and abstract submissions is Friday 15th June.

In addition to the discussion of new results in X-ray astronomy, this meeting will pay special attention to the future of the subject within the UK, from fully exploiting the potential of current missions - Chandra, XMM-Newton, INTEGRAL, Suzaku, Swift and RXTE - to the potential of forthcoming missions like GLAST and ASTROSAT, to plans for the next generation of X-ray telescopes (e.g. XEUS).

All interested persons are invited to attend. In particular this workshop will provide an opportunity for newer members of the UK high energy community to present results, and to meet with members of other groups working in this area.

Second Announcement:
**AGN Across Cosmic Time**
Seeon, Bavaria, Germany
5-8 June 2007

**Webpage:** `http://www.eso.org/gen-fac/meetings/agnii2007/`
**Email:** `agnii2007@eso.org`

### SCIENTIFIC TOPICS:

Multiwavelength identification of Type 2 AGN: X-ray, optical, mid-IR, submillimeter and radio selection.

Structure and origin of the obscuration, connection to Type 1 AGN, detailed studies of local AGN.

AGN feedback processes: observations and theory.

Host galaxy properties: star formation, masses, M-sigma relation.

Lyman alpha blobs and haloes, extended emission.

Large scale environments.

### INVITED REVIEW TALKS

Dave Alexander: Identification of AGN in X-ray surveys
Mitch Begelman: AGN feedback mechanisms: a theoretical perspective
Philip Best: Identification of AGN in radio surveys
Reinhard Genzel: The lurking black hole in the Galactic center
Guenther Hasinger: Cosmic evolution of AGN
Tim Heckman: Stellar properties of host galaxies
Matt Lehnert: AGN feedback mechanisms: an observational perspective
Roberto Maiolino: The nature and structure of obscuration
Raffaella Morganti: Lessons from local AGN
Marek Sikora: The difference between radio-loud and radio-quiet AGN
Daniel Stern: Identification of AGN in mid-IR surveys
Nadia Zakamska: Identification of AGN in optical surveys

### CONFERENCE FORMAT

In addition to the invited review talks, the SOC will select about 10 targeted talks (20+5 minutes) to discuss recent high-impact results and about 35 contributed talks. Instead of posters, we will have at least two one-hour sessions with short (5 minutes) oral presentations. There will be no proceedings, but we will encourage the speakers to make their presentations available through the conference website.

### REGISTRATION

**The formal deadline was March 1st but late registrations may be considered until March 7th**.
If you are interested in participating in this workshop, please register online at
`http://www.eso.org/gen-fac/meetings/agnii2007/registform.html`
We strongly encourage students and postdocs to apply. Please note that the attendance is limited to 120 participants. A list of accepted contributions and a preliminary programme will be announced on 22 March 2007.

The conference registration fee is fixed at 100 Euros. Full board at the conference hotel costs 131.50 Euros per day. The total lodging cost for the 3.5 days of the conference is 500 Euros.

### LOCATION

The conference will be held at Kloster Seeon, a recently renovated 10th century Benedictine monastery near lake Chiemsee. This state-of-the-art conference center includes a 3-star hotel with 88 rooms and a restaurant proposing excellent cuisine with regional specialities. Seeon is located halfway between Munich and Salzburg at the foothills of the southern Bavarian Alps.

### ORGANIZERS

SOC: Jacqueline Bergeron (IAP), Carlos De Breuck (ESO, co-Chair), Robert Fosbury (ST-ECF), Guinevere Kauffmann (MPA), Julian Krolik (JHU), Ari Laor (Technion), Vincenzo Mainieri (ESO), Patrick Ogle (SSC), Steve Rawlings (Oxford), Daniel Stern

(JPL), Wil van Breugel (LLNL), Joel Vernet (ESO, co-Chair), Montserrat Villar-Martin (IAA)

LOC: Carlos De Breuck, Joel Vernet, Robert Fosbury, Vincenzo Mainieri, Christina Stoffer, Britt Sjoeberg, Pamela Bristow

Please circulate this message to other interested colleagues.

Carlos De Breuck, Joel Vernet and Vincenzo Mainieri On behalf of the LOC/SOC

## Special Announcements

### SHAPE: New software for the modeling of astronomical objects in 3D

**Wolfgang Steffen[1], Nico Koning[2]**

[1] Instituto de Astronomía, Universidad Nacional Autónoma de México, Ensenada, Mexico
[2] University of Calgary, Calgary, Canada

The Instituto de Astronoma at the Universidad Nacional Autnoma de Mxico has released Version 1.0 of a new software system called Shape for general use by the scientific community.

Shape is a morpho-kinematic modeling tool for astrophysical nebulae. The main application of Shape is to assist in the interpretation of observations. The morpho-kinematic 3D modeling is done with commonly available 3D modeling software like 3D Studio Max, Blender or the built-in 3D-module. Using a comfortable graphical interface, the user generates images and position-velocity (pv-) diagrams, channel maps and one dimensional spectral line shapes based on the Doppler-effect. The design purpose of Shape is the analysis of the 3D structure and kinematics of spatially resolved astrophysical nebulae in a way that can be compared directly with observations. It is particularly suited for the study of expanding nebulae like planetary nebulae and other structures with clear kinematical signatures like bow-shocks or accretion disks and other streaming flows that can be analyzed using the Doppler-effect. Shape may be applied to the interpretation of existing observations or the planning and prediction of observations based on a proposed model.

More information about Shape, including the software download, the current development status, published papers, examples and the user manual can be found on the ShapeSite:

http://www.astrosen.unam.mx/shape.

Shape has been designed and developed by Wolfgang Steffen from the Institute of Astronomy, UNAM, Ensenada, Baja California, Mexico, with scientific contributions to the design by José Alberto López (also from the IA-UNAM). The development of the public version of Shape has been in collaboration with Nicholas Koning from the University of Calgary (Canada).

**Reference:**

Steffen, W., López, J.A., 2006, Morpho-kinematic modeling of gaseous nebulae with SHAPE, Revista Mexicana de Astronomía y Astrofísica 42, 99-105



Acknowledgements: This project has obtained financial support by UNAM (DGAPA PAPIIT projects IN108506, IN111803, IN112103), the Consejo Nacional de Ciencia y Tecnología CONACYT (project 49447) and the University of Calgary through a grant from the Natural Sciences and Engineering Council of Canada awarded to Sun Kwok.

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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.