Active Galaxies Newsletter	*An electronic publication dedicated to the observation and theory of active galaxies*
No. 231 — January 2017	Editor: Megan Argo (agnews@manchester.ac.uk)

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

From the Editor

Happy New Year! Here's hoping for a peaceful and rational 2017.

Welcome to all the new subscribers, and thanks to everyone who contributed to this issue of the Active Galaxies Newsletter.

This newsletter is intended to disseminate paper abstracts, meeting announcements, job adverts and other information which may be of interest to the active galaxies community. It is produced monthly and, whilst the deadline for contributions is the last day of the month, contributions may be submitted at any time.

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. Please note that the editor may reject submissions which do not use the template. As always, any suggestions or feedback regarding the newsletter are welcome.

Thanks for your continued subscription.

Megan Argo

Abstracts of recently accepted papers

Correlated X-ray/UV/optical variability and the nature of accretion disc in the bare Seyfert 1 galaxy Fairall 9

Main Pal[1], Gulab C. Dewangan[1], S. D. Connolly[2], Ranjeev Misra[1]

[1] Inter University Centre for Astronomy and Astrophysics (IUCAA), Pune 411007, India.
[2] Physics & Astronomy, University of Southampton, Highfield, Southampton, SO17 1BJ, UK.

We study multi-wavelength variability of a bare Seyfert 1 galaxy Fairall 9 using *Swift* monitoring observations consisting of 165 usable pointings spanning nearly two years and covering six UV/optical bands and X-rays. Fairall 9 is highly variable in all bands though the variability amplitude decreases from X-ray to optical bands. The variations in the X-ray and UV/optical bands are strongly correlated. Our reverberation mapping analysis using the `JAVALIN` tool shows that the variation in the UV/optical bands lag behind the variations in the X-ray band by $\sim 2-10$ days. These lag measurements strongly suggest that the optical/UV variations are mainly caused by variations in the X-rays, and the origin of most of the optical/UV emission is X-ray reprocessing. The observed lags are found to vary as $\tau \propto \lambda^{1.36\pm0.13}$, consistent with the prediction, $\tau \propto \lambda^{4/3}$, for X-ray reprocessing in a standard accretion disc. However, the predicted lags for an standard accretion disc with X-ray reprocessing using black hole mass ($M_{BH} \sim 2.6 \times 10^8\ M_\odot$) estimated from the reverberation mapping of broad emission lines and accretion rate relative to the Eddington rate ($\dot{m}_E = 0.02$) are shorter than the observed lags. These observations suggest that accretion disc in Fairall 9 is larger than that predicted by the standard disc model, and confirm similar findings in a few other Seyfert 1 galaxies such as NGC 5548.

Accepted by MNRAS

E-mail contact: mainpal@iucaa.in
Preprint available at http://arxiv.org/abs/1612.01369

Coronal properties of the luminous radio-quiet quasar QSO B2202–209

E. S. Kammoun[1], G. Risaliti[2,3], D. Stern[4], H. D. Jun[4], M. Graham[5], A. Celotti[1,6,7], E. Behar[8], M. Elvis[9], F. A. Harrison[5], G. Matt[10] and D. J. Walton[4,5]

[1] SISSA, via Bonomea 265, I-34135 Trieste, Italy
[2] Dipartimento di Fisica e Astronomia, Università di Firenze, via G. Sansone 1, 50019 Sesto Fiorentino (Firenze), Italy
[3] INAF - Osservatorio Astrofisico di Arcetri, Largo E. Fermi 5, I-50125 Firenze, Italy
[4] Jet Propulsion Laboratory, California Institute of Technology, 4800 Oak Grove Drive, Pasadena, CA 91109, USA
[5] California Institute of Technology, 1200 East California Boulevard, Pasadena, CA 91125, USA
[6] INAF -Osservatorio Astronomico di Brera, via Bianchi 46, I-23807 Merate, Italy
[7] INFN - Sezione di Trieste, via Valerio 2, I-34127 Trieste, Italy
[8] Department of Astronomy, University of Maryland, College Park, MD 20742, USA
[9] Harvard Smithsonian Center for Astrophysics, 60 Garden Street, Cambridge, MA 02138, USA
[10] Dipartimento di Matematica e Fisica, Università degli Studi Roma Tre, via della Vasca Navale 84, I-00146 Roma, Italy

We present an analysis of the joint *XMM-Newton* and *NuSTAR* observations of the radio-quiet quasar QSO B2202–209. Using an optical observation from the Hale Telescope at the Palomar Observatory, we revise the redshift of the source from the previously reported $z = 1.77$ to $z = 0.532$, and we estimate the mass of the central black hole, $\log(M_{\rm BH}/M_\odot) = 9.08 \pm 0.18$. The X-ray spectrum of this source can be well described by a power-law of photon index $\Gamma = 1.82 \pm 0.05$ with $E_{\rm cut} = 152^{+103}_{-54}$ keV, in the rest frame of the source. Assuming a Comptonisation model, we estimate the coronal temperature to be $kT_{\rm e} = 42 \pm 3\,{\rm keV}$ and $kT_{\rm e} = 56 \pm 3\,{\rm keV}$ for a spherical and a slab geometry, respectively. The coronal properties are comparable to the ones derived for local AGN, despite a difference of around one order of magnitude in black hole mass and X-ray luminosity ($L_{2-10} = 1.93 \times 10^{45}\,{\rm erg\,s^{-1}}$). The quasar is X-ray loud, with an unusually flat observed optical-to-X-ray spectral slope $\alpha_{\rm OX} = 1.00 \pm 0.02$, and has an exceptionally strong optical [O III] line. Assuming that both the X-ray emission and the [O III] line are isotropic, these two extreme properties can be explained by a nearly edge-on disk, leading to a reduction in the observed UV continuum light.

Accepted by MNRAS

E-mail contact: ekammoun@sissa.it
Preprint available at http://mnras.oxfordjournals.org/content/465/2/1665

The Complete Infrared View of Active Galactic Nuclei from the 70-month Swift/BAT Catalog

K. Ichikawa[1,2,3], C. Ricci[4,5], Y. Ueda[6], K. Matsuoka[6], Y. Toba[7], T. Kawamuro[6], B. Trakhtenbrot[8], and M. J. Koss[8]

[1] National Astronomical Observatory of Japan, 2-21-1 Osawa, Mitaka, Tokyo 181-8588, Japan
[2] Department of Physics and Astronomy, University of Texas at San Antonio, One UTSA Circle, San Antonio, TX 78249, USA
[3] Department of Astronomy, Columbia University, 550 West 120th Street, New York, NY 10027, USA
[4] Institute of Astrophysics, Pontificia Universidad Catolica de Chile, Avenida Vicua Mackenna 4860, 7820436, Chile
[5] Kavli Institute for Astronomy and Astrophysics, Peking University, Beijing 100871, China
[6] Department of Astronomy, Kyoto University, Kitashirakawa-Oiwake-cho, Sakyo-ku, Kyoto 606-8502, Japan
[7] Academia Sinica Institute of Astronomy and Astrophysics, P.O. Box 23-141, Taipei 10617, Taiwan
[8] Institute for Astronomy, Department of Physics, ETH Zurich, Wolfgang-Pauli-Strasse 27, CH-8093 Zurich, Switzerland

We systematically investigate the near- (NIR) to far-infrared (FIR) photometric properties of a nearly complete sample of local active galactic nuclei (AGN) detected in the *Swift*/Burst Alert Telescope (BAT) all-sky ultra hard X-ray (14–195 keV) survey. Out of 606 non-blazar AGN in the *Swift*/BAT 70-month catalog at high galactic latitude of $|b| > 10^\circ$, we obtain IR photometric data of 604 objects by cross-matching the AGN positions with catalogs from the *WISE*, *AKARI*, *IRAS*, and *Herschel* infrared observatories. We find a good correlation between the ultra-hard X-ray and mid-IR (MIR) luminosities over five orders of magnitude ($41 < \log(L_{14-195}/{\rm erg\ s^{-1}}) < 46$). Informed by previous measures of the intrinsic spectral energy distribution of AGN, we find FIR pure-AGN candidates whose FIR emission is thought to be AGN-dominated with low starformation activity. We demonstrate that the dust covering factor decreases with the bolometric AGN luminosity, confirming the luminosity-dependent unified scheme. We also show that the completeness of the *WISE* color-color cut in selecting *Swift*/BAT AGN increases strongly with 14–195 keV luminosity.

Accepted by ApJ.

E-mail contact: k.ichikawa@astro.columbia.edu
Preprint available at http://adsabs.harvard.edu/abs/2016arXiv161109858I

Fading AGN Candidates: AGN Histories and Outflow Signatures

William C. Keel[1], Chris J. Lintott[2], W. Peter Maksym[1,3], Vardha N. Bennert[4], S. Drew Chojnowski[5], Alexei Moiseev[6], Aleksandrina Smirnova[6], Kevin Schawinski[7], Lia F. Sartori[7], C. Megan Urry[8], Anna Pancoast[3], Mischa Schirmer[9], Bryan Scott[4], Charles Showley[4], and Kelsi Flatland[4]

[1]Department of Physics and Astronomy, University of Alabama, Box 870324, Tuscaloosa, AL 35487
[2]Astrophysics, Oxford University; and Adler Planetarium, 1300 S. Lakeshore Drive, Chicago, IL 60605
[3]Center for Astrophysics, 60 Garden St., Cambridge, MA 02138
[4]Physics Department, California Polytechnic State University, San Luis Obispo, CA 93407
[5]Department of Astronomy, New Mexico State University, P. O. Box 30001, MSC 4500, Las Cruces, New Mexico 88003-8001
[6]Special Astrophysical Observatory, Russian Academy of Sciences, Nizhny Arkhyz, Russia 369167
[7]Institute for Astronomy, ETH Zürich, Wolfgang-Pauli-Straße 27, CH-8093 Zurich, Switzerland
[8]Department of Physics, Yale University, P.O. Box 208120, New Haven, CT 06520-8120
[9]Gemini Observatory, La Serena, Chile

We consider the energy budgets and radiative history of eight fading AGN, identified from an energy shortfall between the requirements to ionize very extended (radius > 10 kpc) ionized clouds and the luminosity of the nucleus as we view it directly. All show evidence of significant fading on $\approx 50,000$-year timescales. We explore the use of minimum ionizing luminosity Q_{ion} derived from photoionization balance in the brightest pixels in Hα at each projected radius. Tests using presumably constant Palomar-Green (PG) QSOs, and one of our targets with detailed photoionization modeling, suggest that we can derive useful histories of individual AGN, with the caveat that the minimum ionizing luminosity is always an underestimate and subject to uncertainties about fine structure in the ionized material. These consistency tests suggest that the degree of underestimation from the upper envelope of reconstructed Q_{ion} values is roughly constant for a given object and therefore does not prevent such derivation. The AGN in our sample show a range of behaviors, with rapid drops and standstills; the common feature is a rapid drop in the last $\approx 2 \times 10^4$ years before the direct view of the nucleus. The e-folding timescales for ionizing luminosity are mostly in the thousands of years, with a few episodes as short as 400 years. In the limit of largely obscured AGN, we find additional evidence for fading from the shortfall between even the lower limits from recombination balance and the maximum luminosities derived from from infrared fluxes. We compare these long-term light curves, and the occurrence of these fading objects among all optically identified AGN, to simulations of AGN accretion; the strongest variations on these timespans are seen in models with strong and local (parsec-scale) feedback. We present Gemini integral-field optical spectroscopy, which shows a very limited role for outflows in these ionized structures. While rings and loops of emission, morphologically suggestive of outflow, are common, their kinematic structure shows some to be in regular rotation. UGC 7342 exhibits local signatures of outflows < 300 km s^{-1}, largely associated with very diffuse emission, and possibly entraining gas in one of the clouds seen in HST images. Only in the Teacup AGN do we see outflow signatures of order 1000 km s^{-1}. In contrast to the extended emission regions around many radio-loud AGN, the clouds around these fading AGN consist largely of tidal debris being externally illuminated but not displaced by AGN outflows.

Accepted by Astrophys. J.

E-mail contact: wkeel@ua.edu
Preprint available at https://arxiv.org/abs/1612.06006

Quasar spectral variability from the XMM-Newton serendipitous source catalogue

R. Serafinelli[1,2], F. Vagnetti[1] and R. Middei[3]

[1] Dipartimento di Fisica, Università di Roma "Tor Vergata", Via della Ricerca Scientifica 1, 00133, Roma, Italy
[2] Dipartimento di Fisica, Università di Roma "La Sapienza", Piazzale Aldo Moro 5, 00185, Roma, Italy
[3] Dipartimento di Matematica e Fisica, Università Roma Tre, Via della Vasca Navale 84, 00146, Roma, Italy

Context. X-ray spectral variability analyses of Active Galactic Nuclei (AGN) with moderate luminosities and redshifts typically show a softer when brighter behaviour. Such trend has been rarely investigated for high-luminosity AGNs ($L_{bol} \gtrsim 10^{44}$ erg/s), nor for a wider redshift range (e.g., $0 \lesssim z \lesssim 5$). Aims. We present an analysis of the spectral variability based on a large sample of 2,700 quasars, measured at several different epochs, extracted from the fifth release of the XMM-Newton Serendipitous Source Catalogue. Methods. We quantify the spectral variability through the parameter β defined as the ratio between the change in the photon index Γ and the corresponding logarithmic flux variation, $\beta = -\Delta\Gamma/\Delta \log F_X$. Results. Our analysis confirms a softer when brighter behaviour also for our sample, extending to high luminosity and redshift the general trend previously found. We estimate an ensemble value of the spectral variability parameter $\beta = -0.69 \pm 0.03$. We do not find dependence of β on redshift, X-ray luminosity, black hole mass, Eddington ratio. A subsample of radio-loud sources shows a smaller spectral variability parameter. There is also some change with the X-ray flux, with smaller β (in absolute value) for brighter sources. We also find significant correlations for a few individual sources, indicating more negative values for some sources.

Accepted by Astronomy & Astrophysics

E-mail contact: roberto.serafinelli@roma2.infn.it
Preprint available at https://arxiv.org/abs/1612.08414

The *NuSTAR* Serendipitous Survey: the 40 Month Catalog and the Properties of the Distant High Energy X-ray Source Population

G. B. Lansbury[1,2], D. Stern[3], J. Aird[2,1], D. M. Alexander[1], C. Fuentes[4], F. A. Harrison[5], E. Treister[4,6], F. E. Bauer[6,7,8], J. A. Tomsick[9], M. Baloković[5], A. Del Moro[10,1], P. Gandhi[1,11], M. Ajello[12], A. Annuar[1], D. R. Ballantyne[13], S. E. Boggs[9], W. N. Brandt[14,15,16], M. Brightman[5], C.-T. J. Chen[14], F. E. Christensen[17], F. Civano[18,19], A. Comastri[20], W. W. Craig[17,21], K. Forster[5], B. W. Grefenstette[5], C. J. Hailey[22], R. C. Hickox[23], B. Jiang[5], H. D. Jun[3], M. Koss[24], S. Marchesi[12], A. D. Melo[4], J. R. Mullaney[25], G. Noirot[3,26], S. Schulze[6,7], D. J. Walton[3,5], L. Zappacosta[27], W. W. Zhang[28]

[1] Centre for Extragalactic Astronomy, Department of Physics, Durham University, South Road, Durham, DH1 3LE, UK
[2] Institute of Astronomy, University of Cambridge, Madingley Road, Cambridge, CB3 0HA, UK
[3] Jet Propulsion Laboratory, California Institute of Technology, 4800 Oak Grove Drive, Mail Stop 169-221, Pasadena, CA 91109, USA
[4] Universidad de Concepción, Departamento de Astronomía, Casilla 160-C, Concepción, Chile
[5] Cahill Center for Astrophysics, 1216 East California Boulevard, California Institute of Technology, Pasadena, CA 91125, USA
[6] Instituto de Astrofísica, Facultad de Física, Pontificia Universidad Católica de Chile, 306, Santiago 22, Chile
[7] Millennium Institute of Astrophysics, Vicuña Mackenna 4860, 7820436 Macul, Santiago, Chile
[8] Space Science Institute, 4750 Walnut Street, Suite 205, Boulder, Colorado 80301, USA
[9] Space Sciences Laboratory, 7 Gauss Way, University of California, Berkeley, CA 94720-7450, USA
[10] Max-Planck-Institut für Extraterrestrische Physik (MPE), Postfach 1312, D85741, Garching, Germany
Please note: affiliation list truncated. For a full list of affiliations, please see the paper.

We present the first full catalog and science results for the *NuSTAR* serendipitous survey. The catalog incorporates data taken during the first 40 months of *NuSTAR* operation, which provide ≈ 20 Ms of effective exposure time over 331 fields, with an areal coverage of 13 deg^2, and 497 sources detected in total over the 3–24 keV energy range. There are 276 sources with spectroscopic redshifts and classifications, largely resulting from our extensive campaign of ground-based spectroscopic followup. We characterize the overall sample in terms of the X-ray, optical, and infrared source properties. The sample is primarily comprised of active galactic nuclei (AGNs), detected over a large range in redshift from $z = 0.002$ to 3.4 (median of $\langle z \rangle = 0.56$), but also includes 16 spectroscopically confirmed Galactic sources. There is a large range in X-ray flux, from $\log(f_{3-24\mathrm{keV}}/\mathrm{erg\ s^{-1}\ cm^{-2}}) \approx -14$ to -11, and in rest-frame 10–40 keV luminosity, from $\log(L_{10-40\mathrm{keV}}/\mathrm{erg\ s^{-1}}) \approx 39$ to 46, with a median of 44.1. Approximately 79% of the *NuSTAR* sources have lower energy (< 10 keV) X-ray counterparts from *XMM-Newton*, *Chandra*, and *Swift* XRT. The mid-infrared (MIR) analysis, using *WISE* all-sky survey data, shows that MIR AGN color selections miss a large fraction of the *NuSTAR*-selected AGN population, from $\approx 15\%$ at the highest luminosities ($L_{\mathrm{X}} > 10^{44}$ erg s^{-1}) to $\approx 80\%$ at the lowest luminosities ($L_{\mathrm{X}} < 10^{43}$ erg s^{-1}). Our optical spectroscopic analysis finds that the observed fraction of optically obscured AGNs (i.e., the Type 2 fraction) is $F_{\mathrm{Type\ 2}} = 53^{+14}_{-15}\%$, for a well-defined subset of the 8–24 keV selected sample. This is higher, albeit at a low significance level, than the Type 2 fraction measured for redshift- and luminosity-matched AGNs selected by < 10 keV X-ray missions.

Accepted for publication in ApJ

E-mail contact: gbl23@ast.cam.ac.uk
Preprint available at https://arxiv.org/abs/1612.06389

The BRAVE Program - I: Improved Bulge Stellar Velocity Dispersion Estimates for a Sample of Active Galaxies

Merida Batiste[1], Misty C. Bentz[1], Emily R. Manne-Nicholas[1], Christopher A. Onken[2] and Matthew A. Bershady[3]

[1] Department of Physics & Astronomy, Georgia State University, 25 Park Place, Atlanta, GA 30303, USA
[2] Research School of Astronomy & Astrophysics, The Australian National University, Canberra, ACT 2611, Australia
[3] Department of Astronomy, University of Wisconsin, 475 N. Charter St., Madison, WI 53706, USA

We present new bulge stellar velocity dispersion measurements for 10 active galaxies with secure M_{BH} determinations from reverberation-mapping. These new velocity dispersion measurements are based on spatially resolved kinematics from integral-field (IFU) spectroscopy. In all but one case, the field of view of the IFU extends beyond the effective radius of the galaxy, and in the case of Mrk 79 the field of view extends to almost one half the effective radius. This combination of spatial resolution and field of view allows for secure determinations of stellar velocity dispersion within the effective radius for all 10 target galaxies. Spatially resolved maps of the first (V) and second ($\sigma_\star$) moments of the line-of-sight velocity distribution (LOSVD) indicate the presence of kinematic substructure in most cases. In future projects we plan to explore methods of correcting for the effects of kinematic substructure in the derived bulge stellar velocity dispersion measurements.

Accepted by The Astrophysical Journal

E-mail contact: batiste@astro.gsu.edu
Preprint available at https://arxiv.org/pdf/1612.02810v1.pdf

ALMA Observations Show Major Mergers Among the Host Galaxies of Fast-growing, High-redshift Supermassive Black Holes

Benny Trakhtenbrot[1,8], Paulina Lira[2], Hagai Netzer[3], Claudia Cicone[1,4], Roberto Maiolino[5,6], Ohad Shemmer[7]

[1] Institute for Astronomy, Department of Physics, ETH Zurich, Wolfgang-Pauli-Strasse 27, CH-8093 Zurich, Switzerland
[2] Departamento de Astronomia, Universidad de Chile, Camino del Observatorio 1515, Santiago, Chile
[3] School of Physics and Astronomy and the Wise Observatory, The Raymond and Beverly Sackler Faculty of Exact Sciences, Tel-Aviv University, Tel-Aviv 69978, Israel
[4] INAF-Osservatorio Astronomico di Brera, via Brera 28, I-20121, Milano, Italy
[5] Cavendish Laboratory, University of Cambridge, 19 J. J. Thomson Avenue, Cambridge CB3 0HE, UK
[6] Kavli Institute for Cosmology, University of Cambridge, Madingley Road, Cambridge CB3 0HA, UK
[7] Department of Physics, University of North Texas, Denton, TX 76203, USA
[8] Zwicky Postdoctoral Fellow

We present new ALMA band-7 data for a sample of six luminous quasars at $z \simeq 4.8$, powered by fast-growing supermassive black holes (SMBHs) with rather uniform properties: the typical accretion rates and black hole masses are $L/L_{\rm Edd} \simeq 0.7$ and $M_{\rm BH} \simeq 10^9\,M_\odot$. Our sample consists of three "FIR-bright" sources which were individually detected in previous *Herschel*/SPIRE observations, with star formation rates of SFR $> 1000\,M_\odot\,{\rm yr}^{-1}$, and three "FIR-faint" sources for which *Herschel* stacking analysis implies a typical SFR of $\sim 400\,M_\odot\,{\rm yr}^{-1}$. The dusty interstellar medium in the hosts of all six quasars is clearly detected in the ALMA data, and resolved on scales of ∼2 kpc, in both continuum ($\lambda_{\rm rest} \sim 150\,\mu$m) and [C II] $\lambda157.74\,\mu$m line emission. The continuum emission is in good agreement with the expectations from the *Herschel* data, confirming the intense SF activity in the quasar hosts. Importantly, we detect companion sub-mm galaxies (SMGs) for three sources – one FIR-bright and two FIR-faint, separated by $\sim 14-45$ kpc and $< 450\,{\rm km\,s^{-1}}$ from the quasar hosts. The [C II]-based dynamical mass estimates for the interacting SMGs are within a factor of ∼3 of the quasar hosts' masses, while the continuum emission implies ${\rm SFR_{quasar}} \sim (2-11) \times {\rm SFR_{SMG}}$. Our ALMA data therefore clearly support the idea that major mergers are important drivers for rapid, early SMBH growth. However, the fact that not all high-SFR quasar hosts are accompanied by interacting SMGs, and the gas kinematics as observed by ALMA, suggest that other processes may be fueling these systems. Our analysis thus demonstrates the diversity of host galaxy properties and gas accretion mechanisms associated with early and rapid SMBH growth.

Accepted by ApJ

E-mail contact: benny.trakhtenbrot@phys.ethz.ch
Preprint available at http://arxiv.org/abs/1612.00010

A long term study of AGN X-ray variability. Structure function analysis on a ROSAT-XMM quasar sample

R. Middei[1], F. Vagnetti[2], S. Bianchi[1], F. La Franca[1], M. Paolillo[3,4,5], and F. Ursini[1,6]

[1] Dipartimento di Matematica e Fisica, Università degli Studi Roma Tre, via della Vasca Navale 84, 00146 Roma, Italy
[2] Dipartimento di Fisica, Università di Roma "Tor Vergata", via della Ricerca Scientifica 1, 00133 Roma, Italy
[3] Dipartimento di Fisica Ettore Pancini, Università di Napoli Federico II, C.U. Monte Sant'Angelo, Via Cinthia, 80126 Napoli, Italy
[4] INFN Sezione di Napoli, Via Cinthia, 80126 Napoli, Italy
[5] Agenzia Spaziale Italiana - Science Data Center, Via del Politecnico snc, 00133 Roma, Italy
[6] Univ. Grenoble Alpes, IPAG, F-38000 Grenoble, France

Variability in the X-rays is a key ingredient in understanding and unveiling active galactic nuclei (AGN) properties. In this band flux variations occur on short time scales (hours) as well as on larger times scales. While short time scale variability is often investigated in single source studies, only few works are able to explore flux variation on very long time scales.This work provides a statistical analysis of the AGN long term X-ray variability. We study variability on the largest time interval ever investigated for the 0.2-2 keV band, up to ∼ 20 years rest-frame for a sample of 220 sources. Moreover, we study variability for 2,700 quasars up to ∼ 8 years rest-frame in the same (soft) band. We build our source sample using the 3XMM serendipitous source catalogue data release 5, and data from ROSAT All Sky Survey Bright and Faint source catalogues. In order to select only AGN we use the Sloan Digital Sky Survey quasar catalogues data releases 7 and 12. Combining ROSAT and XMM-Newton observations, we investigate variability using the structure function analysis which describes the amount of variability as a function of the lag between the observations. Our work shows an increase of the structure function up to 20 years. We do not find evidence of a plateau in the structure function on these long time scales. The increase of the structure function at long time lags suggests that variability in the soft X-rays can be influenced by flux variations originated in the accretion disk or that they take place in a region large enough to justify variation on such long time scales.

Accepted by Astronomy & Astrophysics

E-mail contact: riccardo.middei@uniroma3.it
Preprint available at https://arxiv.org/abs/1612.08547

Double-peaked profiles: ubiquitous signatures of disks in the Broad Emission Lines of Active Galactic Nuclei

T. Storchi-Bergmann[1,4], J.S. Schimoia[1,2], B.M. Peterson[2,3], M. Elvis[4], K.D. Denney[2] , M. Eracleous[5], R. S. Nemmen[6]

[1] Instituto de Física, Universidade Federal do Rio Grande do Sul, Campus do Vale, Porto Alegre, RS, Brazil
[2] Department of Astronomy, 140 West 18th Avenue, and the Center for Cosmology and AstroParticle Physics, 191 West Woodruff Avenue, The Ohio State University, Columbus, OH 43210, USA
[3] Space Telescope Science Institute, 3700 San Martin Drive, Baltimore, MD 21218
[4]Harvard-Smithsonian Center for Astrophysics, 60, Garden Street, Cambridge, MA 02138, USA
[5]Department of Astronomy & Astrophysics, The Pennsylvania State University, University Park, PA 16802, USA
[6]Instituto de Astronomia, Geofísica e Ciências Atmosféricas, Universidade de São Paulo, 05508-090 São Paulo, SP, Brazil

Broad ($\sim$10,000 km s^{-1}), double-peaked emission-line profiles of Balmer lines emitted by active galactic nuclei (AGN) are thought to originate in the outer parts of an accretion disk surrounding a nuclear supermassive black hole (SMBH), at ~ 1000 gravitational radii and are most frequently observed in the nuclear spectra of low-luminosity AGN (LLAGN) and radio-galaxies. In the present paper we argue that broad double-peaked profiles are present also in the spectra of other Type 1 AGN, such as Seyfert 1 galaxies, suggesting that the inner part of the broad-line region (BLR) is also the outer part of the accretion disk. We use the Palomar spectral survey of nearby galaxies to show that the only difference between Seyfert 1 BLR line profiles and "bona fide" double peakers is that, in most cases, besides a disk component, we need an additional Gaussian component attributed to non-disk clouds.The recognition that the inner and most variable part of the BLR has a disk geometry suggests that the factor f in the expression to obtain the SMBH mass in Type 1 AGN $M_{\rm BH} = f\left(R_{\rm BLR}\Delta V^2/G\right)$ is $f = 1/\sin^2 i$ for the disk dominated sources. Our median $i = 27^\circ$ implies $f = 4.5$, very close to the most recent value of $f = 4.3 \pm 1.05$, obtained from independent studies.We derive a relation between f and the FWHM of the broad profile that may help to reduce the uncertainties in the SMBH mass determinations of AGN.

Accepted by Astrophys. J.

E-mail contact: thaisa@ufrgs.br
preprint available at http://arxiv.org/1612.06843

Meetings

AGN Winds on the Georgia Coast

Jekyll Island, Georgia, USA
June 25 - 29, 2017

Webpage: `http://www.astro.gsu.edu/AGNWinds`
Email: `agnwinds@astro.gsu.edu`

We invite you to attend and participate in the conference “AGN Winds on the Georgia Coast” (http://www.astro.gsu.edu/AGNWinds). The conference will be held at Jekyll Island Club Hotel from Sunday, June 25 - Thursday, June 29, 2017, approximately 6 years after the last AGN Winds conference in Charleston, SC. Since then, observations of AGN across the electromagnetic spectrum have continued to reveal complex physical processes driven by AGN outflows at all size scales. This progress warrants a specialized meeting to summarize these developments and promote the discussion and exchange of new ideas.

Specific topics at the conference include:
- Observations of AGN outflows across the electromagnetic spectrum
- Locations and geometries of outflows from accretion disks to host galaxies
- Spatially resolved observations of outflows
- Molecular outflows and their impact
- Connection to AGN feeding - inflows and accretion
- Physical constraints on the outflowing gas and acceleration mechanisms
- Simulations and energetics of AGN winds
- Effects of AGN winds on their environments, feedback

The meeting will consist of 15 - 20 minute contributed talks over 3 1/2 days (Monday - Thursday afternoon) plus poster sessions over this entire period (reception on Sunday evening). A significant amount of time will be set aside for poster presentations, one-hour group discussions, and informal conversations during lunch and other breaks. We strongly encourage students and postdoctoral associates to come and present their work, and will set aside a number of time slots for the above. We anticipate about 80 participants.

The meeting will be held at an historic resort hotel, Jekyll Island Club Hotel (http://www.jekyllclub.com/), which will set aside a block of rooms at reduced rates. Sharing of rooms will help to further reduced the costs. Details on meeting registration, program, and room reservations will be added to the following website by the end of January, 2017: http://www.astro.gsu.edu/AGNWinds.

The X-ray Universe 2017

Rome, Italy
6th - 9th June 2017

Webpage: `http://xrayuniverse.esa.int`
Email: `xru2017@sciops.esa.int`

The XMM-Newton Science Operations Centre is organising a major astrophysical symposium from Tuesday 6th to Friday 9th of June 2017 in Rome, Italy.

The symposium is the fifth international meeting in the series "The X-ray Universe". The intention is to gather a general collection of research in high energy astrophysics. The symposium will provide a showcase for results, discoveries and expectations from current and future X-ray missions.

Most up-to-date information, including details on the key dates for registration and abstract submission is available via the conference web page.

Foreseen Major Milestones:

Thu. January 19, 2017	First Announcement: Abstract/Registration Open
Wed. March 22, 2017	Abstract submission deadline
Mid April, 2017	Communication of SOC decisions to presenters
Thu. April 27, 2017	Early registration deadline
End May 2017	Final Announcement

Unveiling the Physics Behind Extreme AGN Variability

University of the Virgin Islands in St. Thomas, USVI
10th-14th July 2017

Webpage: `https://variableagn2017.sciencesconf.org`
Email: `extremeagn2017@gmail.com`

Dear colleagues,

We would like to bring your attention to the Unveiling the Physics Behind Extreme AGN Variability conference, which will take place July 10-14th at the University of the Virgin Islands in St. Thomas, USVI.

Our aim is to bring together the communities of AGN variability, TDEs, microlensing, and theorists to focus on the following main themes:

- What do we know about AGN variability in general? Are changing-look AGN and TDEs the extreme tail end of this distribution? How can we extend theoretical progress to learn about regular to extreme variability in AGN?
- What can changing-look AGN, TDEs, and microlensing teach us about the theory of accretion physics and the AGN/galaxy connection?
- How can we devise strategies to most efficiently look for these phenomena with the upcoming generation of multiwavelength telescopes, including Pan-STARRS, LSST, eROSITA, SKA, WFIRST?

Confirmed Invited Speakers:
K. Alexander
J. Dexter
C. Done
H. Flohic
J. Guillochon
A. King (plenary)
J. Ruan
O. Shemmer

Important Dates:

Abstract Submission: January 31st - February 28th

Science Program Announced: April 1st

Registration: April 1st - May 1st, or until capacity is reached

Please see the conference website, https://variableagn2017.sciencesconf.org, for more information.

Regards,

Steph LaMassa & Nic Ross, on behalf of the SOC

———

Unveiling the Physics Behind Extreme AGN Variability
https://variableagn2017.sciencesconf.org
July 10 - 14, 2017
University of the Virgin Islands

SOC:
S. Gezari
M. Graham
S. Komossa
S. LaMassa (co-chair)
A. Lawrence
C. MacLeod
N. Ross (co-chair)
J. Runnoe

LOC:
N. Cucchiara
D. Morris
J. Staff

Polarised Emission from Astrophysical Jets

Ierapetra, Greece
June 12–16, 2017

Webpage: http://www3.mpifr-bonn.mpg.de/old_mpifr/jetpol/jetpol/Home.html
Email: eangelakis@mpifr.de

The registration is now open at: http://www3.mpifr-bonn.mpg.de/old_mpifr/jetpol/jetpol/Registration_%26_Dates.html

Rationale

The conference aims at a comprehensive coverage of the theoretical and observational aspects related to linearly and circularly polarized emission observed from extragalactic (AGN, GRBs) as well as galactic (e.g. XRBs) astrophysical jets, and its potential to reveal the physical conditions and emission processes governing these sources. The meeting will focus on current polarimetric monitoring programs, as well as high angular resolution interferometric observations, and prospects for new facilities (i.e., ALMA, SKA, EHT, XIPE, e-ASTROGAM). Special attention will be paid on reviewing current models for linear and circular polarization (including Faraday effects), and its relation to the jet magnetic field topology, composition, propagation, and formation. We therefore invite contributions in the following topics:

- Theoretical models for linear and circular polarisation emission
- Propagation of polarised emission and Faraday rotation effects
- Magnetic field structure and its role in the jet dynamics
- Jet formation and composition
- Polarization variability
- Polarimetric monitoring programs
- High angular resolution polarimetric observations
- Prospects for high energy (X-ray, gamma-ray) polarimetry

Confirmed Invited Speakers (in alphabetical order)

Ivan Agudo (Instituto de Astrofisica de Andalucia , Granada, Spain)
Margo Aller (University of Michigan, USA)
Keichi Asada (Academia Sinica, Taiwan)
Daniel Homan (Denison University, USA)
Ryosuke Itoh (Hiroshima University, Japan)
Michael Johnson (CfA, Harvard University, USA)
Svetlana Jorstad (Boston University, USA)
Shiho Kobayashi (Liverpool John Moores University, UK)
Alan Marscher (Boston University, USA)
Sera Markoff (University of Amsterdam)
Ivan Marti-Vidal (Chalmers University of Technology, Sweden)
James Miller-Jones (Curtin University, Australia)
I. Flix Mirabel (National Research Council, Argentina)
Monica Moscibrodzka (Radboud University, The Netherlands)
Carole Mundell (University of Bath, UK)
Vasiliki Pavlidou (University of Crete, Greece)
David Russell (New York University, Abu Dhabi)
Lukasz Stawarz (Jagiellonian University in Cracow, Poland)
John Wardle (Brandeis University, USA)
Haocheng Zhang (University of New Mexico, USA)

Important Dates

- November 2016: Registration opens.
- March 24, 2017: Registration deadline.
- April 14, 2017: Program announcement.
- June 12-16, 2017: The conference will take place.

Scientific Organising Committee

E. Angelakis (Max-Planck-Institut fr Radioastronomie, Germany)
M. Boettcher (North-West University, South Africa)
R. Fender (University of Oxford. UK)
J.-L. Gomez (Instituto de Astrofsica de Andaluca, Spain)
T. Hovatta (University of Turku, Finland)
J. A. Zensus (Max-Planck-Institut fr Radioastronomie, Germany)

Organising Committee

E. Angelakis (LOC, Max-Planck-Institut fr Radioastronomie, Germany)
M. Boettcher (North-West University, South Africa)
K. Diamantakis (LOC, Metropole of Ierapetra and Sitia)
J.-L. Gomez (Instituto de Astrofsica de Andaluca, Spain)
V. Karamanavis (LOC, Max-Planck-Institut fr Radioastronomie, Germany)
I. Myserlis (LOC, Max-Planck-Institut fr Radioastronomie, Germany)
A. Skarvelis (LOC, Metropole of Ierapetra and Sitia)