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

From the Editor

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

EVN Observations of HESS J1943+213: Evidence for an Extreme TeV BL Lac Object

Kazunori Akiyama[1,2,3,8], Łukasz Stawarz[4], Yasuyuki T. Tanaka[5], Hiroshi Nagai[2], Marcello Giroletti[6] and Mareki Honma[2,7]

[1] Massachusetts Institute of Technology, Haystack Observatory, Route 40, Westford, MA 01886, USA
[2] National Astronomical Observatory of Japan, 2-21-1 Osawa, Mitaka, Tokyo 181-8588, Japan
[3] Department of Astronomy, Graduate School of Science, The University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-0033, Japan
[4] Astronomical Observatory, Jagiellonian University, ul. Orla 171, 30-244 Kraków, Poland
[5] Hiroshima Astrophysical Science Center, Hiroshima University, 1-3-1 Kagamiyama, Higashi-Hiroshima 739-8526, Japan
[6] INAF Istituto di Radioastronomia, via Gobetti 101, 40129 Bologna, Italy
[7] Graduate University for Advanced Studies, Mitaka, 2-21-1 Osawa, Mitaka, Tokyo 181-8588
[8] JSPS Postdoctoral Fellow for Research Abroad

We report on the 1.6 GHz (18 cm) VLBI observations of the unresolved, steady TeV source HESS J1943+213 located in the Galactic plane, performed with the European VLBI Network (EVN) in 2014. Our new observations with a nearly full EVN array provide the deepest image of HESS J1943+213 at the highest resolution ever achieved, enabling us to resolve the long-standing issues of the source identification. The milliarcsecond-scale structure of HESS J1943+213 has a clear asymmetric morphology, consisting of a compact core and a diffuse jet-like tail. This is broadly consistent with the previous e-EVN observations of the source performed in 2011, and re-analyzed in this work. The core component is characterized by the brightness temperature of $> 1.8 \times 10^9$ K, which is typical for low-luminosity blazars in general. Overall, radio properties of HESS J1943+213 are consistent with the source classification as an "extreme high-frequency-peaked BL Lac object". Remarkably, we note that since HESS J1943+213 does not reveal any optical or infrared signatures of the AGN activity, it would never be recognized and identified as a BL Lac object, if not its location close to the Galactic plane where the High Energy Stereoscopic System has surveyed, and the follow-up dedicated X-ray and radio studies triggered by the source detection in the TeV range. Our results suggest therefore a presence of an unrecognized, possibly very numerous population of particularly extreme HBLs, and simultaneously demonstrate that the low-frequency VLBI observations with high-angular resolution are indispensable for a proper identification of such objects.

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E-mail contact: kazu@haystack.mit.edu
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ALMA resolves the torus of NGC 1068: continuum and molecular line emission

S. García-Burillo[1], F. Combes[2], C. Ramos Almeida[3,4], A. Usero[1], M. Krips[5], A. Alonso-Herrero[6], S. Aalto[7], V. Casasola[8], L. K. Hunt[8], S. Martín[9,10], S. Viti[11], L. Colina[6,12], F. Costagliola[7,13], A. Eckart[14], A. Fuente[1], C. Henkel[15,16], I. Márquez[17], R. Neri[5], E. Schinnerer[18], L. J. Tacconi[19], P. P. van der Werf[20]

[1]Observatorio Astronómico Nacional (OAN-IGN)-Observatorio de Madrid, Alfonso XII, 3, 28014-Madrid, Spain
[2]LERMA, Obs. de Paris, PSL Research Univ., Collège de France, CNRS, Sorbonne Univ., UPMC, Paris, France
[3]IAC, Vía Láctea, s/n, E-38205 La Laguna, Tenerife, Spain
[4]Departamento de Astrofísica, Universidad de La Laguna, E-38205, La Laguna, Tenerife, Spain
[5]IRAM, 300 rue de la Piscine, Domaine Universitaire de Grenoble, 38406 St.Martin d'Hères, France
[6]CAB (CSIC-INTA), Ctra de Torrejón a Ajalvir, km 4, 28850 Torrejón de Ardoz, Madrid, Spain
[7]Department of Earth and Space Sciences, Chalmers University of Technology, Onsala Observatory, 439 92-Onsala, Sweden
[8]INAF-Osservatorio Astrofisico di Arcetri, Largo Enrico Fermi 5, 50125-Firenze, Italy
[9]Joint ALMA Observatory, Alonso de Córdova, 3107, Vitacura, Santiago 763-0355, Chile
[10]ESO, Alonso de Córdova, 3107, Vitacura, Santiago 763-0355, Chile
[11]Department of Physics and Astronomy, UCL, Gower Place, London WC1E 6BT, UK
[12]ASTRO-UAM, Unidad Asociada CSIC, Madrid, Spain
[13]INAF - Istituto di Radioastronomia, via Gobetti 101, 40129, Bologna, Italy
[14]I. Physikalisches Institut, Universität zu Köln, Zülpicher Str. 77, 50937, Köln, Germany
[15]Max-Planck-Institut für Radioastronomie, Auf dem Hügel 69, 53121, Bonn, Germany
[16]Astronomy Department, King Abdulazizi University, P. O. Box 80203, Jeddah 21589, Saudi Arabia
[17]IAA (CSIC), Apdo 3004, 18080-Granada, Spain
[18]Max-Planck-Institut für Astronomie, Königstuhl, 17, 69117-Heidelberg, Germany
[19]Max-Planck-Institut für extraterrestrische Physik, Postfach 1312, 85741-Garching, Germany
[20]Leiden Observatory, Leiden University, PO Box 9513, 2300 RA Leiden, Netherlands

We have used the Atacama Large Millimeter Array (ALMA) to map the emission of the CO(6–5) molecular line and the 432 μm continuum emission from the 300 pc-sized circumnuclear disk (CND) of the nearby Seyfert 2 galaxy NGC 1068 with a spatial resolution of ~ 4 pc. These observations spatially resolve the CND and, for the first time, image the dust emission, the molecular gas distribution, and the kinematics from a 7–10 pc-diameter disk that represents the submillimeter counterpart of the putative torus of NGC 1068. We fitted the nuclear spectral energy distribution of the torus using ALMA and near and mid-infrared (NIR/MIR) data with CLUMPY torus models. The mass and radius of the best-fit solution for the torus are both consistent with the values derived from the ALMA data alone: $M_{\rm gas}^{\rm torus} = (1 \pm 0.3) \times 10^5$ $M_\odot$ and $R_{\rm torus} = 3.5 \pm 0.5$ pc. The dynamics of the molecular gas in the torus show strong non-circular motions and enhanced turbulence superposed on a surprisingly *slow* rotation pattern of the disk. By contrast with the nearly edge-on orientation of the H_2O megamaser disk, we have found evidence suggesting that the molecular torus is less inclined ($i = 34^\circ - 66^\circ$) at larger radii. The lopsided morphology and complex kinematics of the torus could be the signature of the Papaloizou-Pringle instability, long predicted to likely drive the dynamical evolution of active galactic nuclei (AGN) tori.

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E-mail contact: s.gburillo@oan.es
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J1216+0709 : A radio galaxy with three episodes of AGN jet activity

Veeresh Singh[1], C. H. Ishwara-Chandra[2], Preeti Kharb[3], Shweta Srivastava[1] and P. Janardhan[1]

[1] Astronomy & Astrophysics Division, Physical Research Laboratory, Ahmedabad 380009, India
[2] National Centre for Radio Astrophysics, TIFR, Post Bag 3, Ganeshkhind, Pune 411007, India
[3] Indian Institute of Astrophysics, II Block, Koramangala, Bangalore 560034, India

We report the discovery of a 'Triple-Double Radio Galaxy (TDRG)' J1216+0709 detected in deep low-frequency Giant Metrewave Radio Telescope (GMRT) observations. J1216+0709 is only the third radio galaxy, after B0925+420 and Speca, with three pairs of lobes resulting from three different episodes of AGN jet activity. The 610 MHz GMRT image clearly displays an inner pair of lobes, a nearly co-axial middle pair of lobes and a pair of outer lobes that is bent w.r.t. the axis of inner pair of lobes. The total end-to-end projected sizes of the inner, middle, and outer lobes are $40''$ ($\sim$ 95 kpc), $1'.65$ ($\sim$ 235 kpc) and $5'.7$ ($\sim$ 814 kpc), respectively. Unlike the outer pair of lobes both the inner and middle pairs of lobes exhibit asymmetries in arm-lengths and flux densities, but in opposite sense, i.e., the eastern sides are farther and also brighter that the western sides, thus suggesting the possibility of jet being intrinsically asymmetric rather than due to relativistic beaming effect. The host galaxy is a bright elliptical ($m_r \sim 16.56$) with $M_{SMBH} \sim 3.9 \times 10^9$ M$\odot$ and star-formation rate of $\sim 4.66^{+4.65}_{-1.61}$ $M_\odot$ yr^{-1}. The host galaxy resides is a small group of three galaxies ($m_r \leq 17.77$) and is possibly going through the interaction with faint, dwarf galaxies in the neighbourhood, which may have triggered the recent episodes of AGN activity.

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Interstellar Scintillation and the Radio Counterpart of the Fast Radio Burst FRB150418

Kazunori Akiyama[1,2,4] **and Michael D. Johnson**[3]

[1] Massachusetts Institute of Technology, Haystack Observatory, Route 40, Westford, MA 01886, USA
[2] National Astronomical Observatory of Japan, 2-21-1 Osawa, Mitaka, Tokyo 181-8588, Japan
[3] Harvard Smithsonian Center for Astrophysics, 60 Garden Street, Cambridge, MA 02138, USA
[4] JSPS Postdoctoral Fellow for Research Abroad

Keane et al. (2016) have recently reported the discovery of a new fast radio burst, FRB150418, with a promising radio counterpart at 5.5 and 7.5 GHz – a rapidly decaying source, falling from 200-300 μJy to 100 μJy on timescales of $\sim$6 d. This transient source may be associated with an elliptical galaxy at redshift $z = 0.492$, providing the first firm spectroscopic redshift for a FRB and the ability to estimate the density of baryons in the intergalactic medium via the combination of known redshift and radio dispersion of the FRB. An alternative explanation, first suggested by Williams & Berger (2016), is that the identified counterpart may instead be a compact AGN. The putative counterpart's variation may then instead be extrinsic, caused by refractive scintillation in the ionized interstellar medium of the Milky Way, which would invalidate the association with FRB150418. We examine this latter explanation in detail and show that the reported observations are consistent with scintillating radio emission from the core of a radio-loud active galactic nucleus (AGN) having a brightness temperature $T_{\rm b} > 10^9$ K. Using numerical simulations of the expected scattering for the line of sight to FRB150418, we provide example images and light curves of such an AGN at 5.5 and 7.5 GHz. These results can be compared with continued radio monitoring to conclusively determine the importance of scintillation for the observed radio variability, and they show that scintillation is a critical consideration for continued searches for FRB counterparts at radio wavelengths.

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STUDY OF SWIFT/BAT SELECTED LOW-LUMINOSITY ACTIVE GALACTIC NUCLEI OBSERVED WITH SUZAKU

Taiki Kawamuro[1], **Yoshihiro Ueda**[1], **Fumie Tazaki**[2], **Yuichi Terashima**[3], **and Richard Mushotzky**[4]

[1] Department of Astronomy, Kyoto University, Kyoto 606-8502, Japan
[2] Mizusawa VLBI Observatory, National Astronomical Observatory of Japan, Osawa, Mitaka, Tokyo 181-8588, Japan
[3] Department of Physics, Ehime University, Matsuyama 790-8577, Japan
[4] Department of Astronomy, University of Maryland, CollegePark, MD 20742-2421, USA

We systematically analyze the broadband (0.5–200 keV) X-ray spectra of hard X-ray ($>$ 10 keV) selected local low-luminosity active galactic nuclei (LLAGNs) observed with *Suzaku* and *Swift*/BAT. The sample consists of ten LLAGNs detected with *Swift*/BAT with intrinsic 14–195 keV luminosities smaller than 10^{42} erg s^{-1} available in the *Suzaku* archive, covering a wide range of the Eddington ratio from 10^{-5} to 10^{-2}. The overall spectra can be reproduced with an absorbed cut-off power law, often accompanied by reflection components from distant cold matter, and/or optically-thin thermal emission from the host galaxy. In all objects, relativistic reflection components from the innermost disk are not required. Eight objects show a significant narrow iron-Kα emission line. Comparing their observed equivalent widths with the predictions from the Monte-Carlo based torus model by Ikeda et al. (2009), we constrain the column density in the equatorial plane to be $\log N_{\rm H}^{\rm eq} > 22.7$ or the torus half opening angle $\theta_{\rm oa} < 70^\circ$. We infer that the Eddington ratio ($\lambda_{\rm Edd}$) is a key parameter that determines the torus structure of LLAGNs: the torus becomes large at $\lambda_{\rm Edd} < 2 \times 10^{-4}$, whereas at lower accretion rates it is little developed. The luminosity correlation between the hard X-ray and mid-infrared (MIR) bands of the LLAGNs follows the same one as for more luminous AGNs. This implies that other mechanisms than AGN-heated dust are responsible for the MIR emission in low Eddington ratio LLAGNs.

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E-mail contact: kawamuro@kusastro.kyoto-u.ac.jp
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Faint COSMOS AGNs at $z \sim 3.3$ - I. Black Hole Properties and Constraints on Early Black Hole Growth

Benny Trakhtenbrot[1], Francesca Civano[2,3], C. Megan Urry[2,4,5], Kevin Schawinski[1], Stefano Marchesi[2,3,6], Martin Elvis[3], David J. Rosario[7,8], Hyewon Suh[3,9], Julian E. Mejia-Restrepo[10], Brooke D. Simmons[11,12], Andreas L. Faisst[13,14], and Masato Onodera[1,15]

[1] Institute for Astronomy, Department of Physics, ETH Zurich, Wolfgang-Pauli-Strasse 27, CH-8093 Zurich, Switzerland
[2] Yale Center for Astronomy and Astrophysics, 260 Whitney Ave., New Haven, CT 06520-8121, USA
[3] Harvard-Smithsonian Center for Astrophysics, 60 Garden St., Cambridge, MA 02138, USA
[4] Department of Physics, Yale University, P.O. Box 208120, New Haven, CT 06520-8120, USA
[5] Department of Astronomy, Yale University, P.O. Box 208101, New Haven, CT 06520-8101, USA
[6] INAF–Osservatorio Astronomico di Bologna, via Ranzani 1, I-40127 Bologna, Italy
[7] Max-Planck-Institut für Extraterrestrische Physik (MPE), Postfach 1312, D-85741 Garching, Germany
[8] Department of Physics, Durham University, South Road, Durham DH1 3LE , UK
[9] Institute for Astronomy, University of Hawaii, 2680 Woodlawn Drive, Honolulu, HI 96822, USA
[10] Departamento de Astronomía, Universidad de Chile, Camino el Observatorio 1515, Santiago, Chile
[11] Oxford Astrophysics, Denys Wilkinson Building, Keble Road, Oxford OX1 3RH, UK
[13] Infrared Processing and Analysis Center, California Institute of Technology, Pasadena, CA 91125, USA
[14] Cahill Center for Astronomy and Astrophysics, California Institute of Technology, Pasadena, CA 91125, USA
[15] Subaru Telescope, National Astronomical Observatory of Japan, 650 North A'ohoku Place, Hilo, HI 96720, USA

We present new Keck/MOSFIRE K-band spectroscopy for a sample of 14 faint, X-ray-selected active galactic nuclei (AGNs) in the COSMOS field. The data cover the spectral region surrounding the broad Balmer emission lines, which enables the estimation of black hole masses ($M_{\rm BH}$) and accretion rates (in terms of $L/L_{\rm Edd}$). We focus on 10 AGNs at $z \simeq 3.3$, where we observe the Hβ spectral region, while for the other four $z \simeq 2.4$ sources we use the Hα broad emission line. Compared with previous detailed studies of unobscured AGNs at these high redshifts, our sources are fainter by an order of magnitude, corresponding to number densities of order $\sim 10^{-6} - 10^{-5}\,{\rm Mpc}^{-3}$. The lower AGN luminosities also allow for a robust identification of the host galaxy emission, necessary to obtain reliable intrinsic AGNs luminosities, BH masses and accretion rates. We find the AGNs in our sample to be powered by supermassive black holes (SMBHs) with a typical mass of $M_{\rm BH} \simeq 5 \times 10^8\,M_{\odot}$ – significantly lower than the higher-luminosity, rarer quasars reported in earlier studies. The accretion rates are in the range $L/L_{\rm Edd} \sim 0.1 - 0.4$, with an evident lack of sources with lower $L/L_{\rm Edd}$ (and higher $M_{\rm BH}$), as found in several studies of faint AGNs at intermediate redshifts. Based on the early growth expected for the SMBHs in our sample, we argue that a significant population of faint $z \sim 5-6$ AGNs, with $M_{\rm BH} \sim 10^6\,M_{\odot}$, should be detectable in the deepest X-ray surveys available, but this is *not* observed. We discuss several possible explanations for the apparent absence of such a population, concluding that the most probable scenario involves an evolution in source obscuration and/or radiative efficiencies.

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E-mail contact: benny.trakhtenbrot@phys.ethz.ch
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Determining the radio AGN contribution to the radio–FIR correlation using the black hole fundamental plane relation

O. Ivy Wong,[1,2] M. J. Koss,[3] K. Schawinski,[3] A. D. Kapińska,[2,1] I. Lamperti,[3] K. Oh,[3] C. Ricci,[4] S. Berney[3] and B. Trakhtenbrot[3]

[1] International Centre for Radio Astronomy Research, The University of Western Australia M468, 35 Stirling Highway, Crawley, WA 6009, Australia
[2] ARC Centre of Excellence for All-Sky Astrophysics (CAASTRO)
[3] Institute for Astronomy, ETH Zrich, Wolfgang-Pauli-Strasse 27, 8093 Zürich, Switzerland
[4] Pontificia Universidad Catolica de Chile, Instituto de Astrofsica, Casilla 306, Santiago 22, Chile; EMBIGGEN Anillo, Concepcion, Chile

We investigate the 1.4 GHz radio properties of 92 nearby ($z < 0.05$) ultra hard X-ray selected Active Galactic Nuclei (AGN) from the Swift Burst Alert Telescope (BAT) sample. Through the ultra hard X-ray selection we minimise the biases against obscured or Compton-thick AGN as well as confusion with emission derived from star formation that typically affect AGN samples selected from the UV, optical and infrared wavelengths. We find that all the objects in our sample of nearby, ultra-hard X-ray selected AGN are radio quiet; 83% of the objects are classed as high-excitation galaxies (HEGs) and 17% as low-excitation galaxies (LEGs). While these low-z BAT sources follow the radio–far-infrared correlation in a similar fashion to star forming galaxies, our analysis finds that there is still significant AGN contribution in the observed radio emission from these radio quiet AGN. In fact, the majority of our BAT sample occupy the same X-ray–radio fundamental plane as have been observed in other samples, which include radio loud AGN —evidence that the observed radio emission (albeit weak) is connected to the AGN accretion mechanism, rather than star formation.

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E-mail contact: ivy.wong@uwa.edu.au
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THE OPTICAL VARIABILITY OF SDSS QUASARS FROM MULTI-EPOCH SPECTROSCOPY. II. COLOR VARIATION

Hengxiao Guo [1,2], Minfeng Gu[1]

[1]Key Laboratory for Research in Galaxies and Cosmology, Shanghai Astronomical Observatory, Chinese Academy of Sciences, 80 Nandan Road Shanghai 200030, China
[2] University of Chinese Academy of Sciences, 19A Yuquanlu, Beijing 100049, China

We investigated the optical/ultraviolet (UV) color variations for a sample of 2169 quasars based on multi-epoch spectroscopy in the Sloan Digital Sky Survey (SDSS) data release seven (DR7) and data release nine (DR9). To correct the systematic difference between DR7 and DR9 due to the different instrumental setup, we produced a correction spectrum by using a sample of F-stars observed both in DR7 and DR9. The correction spectrum was then applied to quasars when comparing the spectra of DR7 with DR9. In each object, the color variation was explored by comparing the spectral index of the continuum power-law fit on the brightest spectrum with the faintest one, and also by the shape of their difference spectrum. In 1876 quasars with consistent color variations from two methods, we found that most sources (1755, $\sim 94\%$) show bluer-when-brighter (BWB) trend, and the redder-when-brighter (RWB) trend is only detected in 121 objects ($\sim 6\%$). The common BWB trend is supported by the bluer composite spectrum constructed from bright spectra than that from faint spectra, and also by the blue composite difference spectrum. The correction spectrum is proved to be highly reliable by comparing the composite spectrum from corrected DR9 and original DR7 spectra. Assuming that the optical/UV variability is triggered by fluctuations, RWB trend can likely be explained if the fluctuations occur firstly at outer disk region, and the inner disk region has not fully responded yet when the fluctuation being propagated inward. In contrast, the common BWB trend implies that the fluctuations are likely more often happening firstly in inner disk region.

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E-mail contact: hengxiaoguo@gmail.com
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The Optical Variability of SDSS Quasars from Multi-epoch Spectroscopy. III. A Sudden UV Cutoff in Quasar SDSS J2317+0005

Hengxiao Guo [1,2,3], Matthew A. Malkan [2], Minfeng Gu [1], Linlin Li [1,3], J. Xavier Prochaska [4], Jingzhe Ma [5], Bei You [6], Tayyaba Zafar[7], Mai Liao [1,3]

[1]Key Laboratory for Research in Galaxies and Cosmology, Shanghai Astronomical
Observatory, Chinese Academy of Sciences, 80 Nandan Road Shanghai 200030, China
[2]Department of Physics and Astronomy, UCLA, Los Angeles, CA, 90095-1547 USA
[3]University of Chinese Academy of Sciences, 19A Yuquan Road, Beijing 100049, China
[4]Department of Astronomy and Astrophysics, UCO/Lick Observatory, University of California, 1156 High Street, Santa Cruz, 95064, USA
[5]Department of Astronomy, University of Florida, 211 Bryant Space Science Center, Gainesville, 32611, USA
[6]Nicolaus Copernicus Astronomical Center, Polish Academy of Sciences, Bartycka 18, 00-716, Warsaw, Poland
[7]European Southern Observatory, Karl-Schwarzschild-Strasse 2, 85748, Garching, Germany

We have collected near-infrared to X-ray data of 20 multi-epoch heavily reddened SDSS quasars to investigate the physical mechanism of reddening. Of these, J2317+0005 is found to be a UV cutoff quasar. Its continuum, which usually appears normal, decreases by a factor 3.5 at 3000Å, compared to its more typical bright state during an interval of 23 days. During this sudden continuum cut-off, the broad emission line fluxes do not change, perhaps due to the large size of the Broad Line Region (BLR), r ¿ 23 / (1+z) days. The UV continuum may have suffered a dramatic drop out. However, there are some difficulties with this explanation. Another possibility is that the intrinsic continuum did not change, but was temporarily blocked out, at least towards our line of sight. As indicated by X-ray observations, the continuum rapidly recovers after 42 days. A comparison of the bright state and dim states would imply an eclipse by a dusty cloud with a reddening curve having a remarkably sharp rise shortward of 3500Å. Under the assumption of being eclipsed by a Keplerian dusty cloud, we characterized the cloud size with our observations, however, which is a little smaller than the 3000Å continuum-emitting size inferred from accretion disk models. Therefore, we speculate this is due to a rapid outflow or inflow with a dusty cloud passing through our line-of-sight to the center.

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E-mail contact: hengxiaoguo@gmail.com
Preprint available at http://arxiv.org/abs/1605.07301

The far-infrared emitting region in local galaxies and QSOs: Size and scaling relations

D. Lutz [1], S. Berta[1], A. Contursi[1], N.M. Förster Schreiber[1], R. Genzel[1], J. Graciá-Carpio[1], R. Herrera-Camus[1], H. Netzer[2], E. Sturm[1], L.J. Tacconi[1], K. Tadaki[1], S. Veilleux[3]

[1] Max-Planck-Institut für extraterrestrische Physik, Giessenbachstraße, 85748 Garching, Germany
[2] School of Physics and Astronomy, Tel Aviv University, Tel Aviv 69978, Israel
[3] Department of Astronomy, University of Maryland, College Park, MD 20742, USA

We use *Herschel* 70 to 160 μm images to study the size of the far-infrared emitting region in about 400 local galaxies and quasar (QSO) hosts. The sample includes normal 'main-sequence' star-forming galaxies, as well as infrared luminous galaxies and Palomar-Green QSOs, with different levels and structures of star formation. Assuming Gaussian spatial distribution of the far-infrared (FIR) emission, the excellent stability of the *Herschel* point spread function (PSF) enables us to measure sizes well below the PSF width, by subtracting widths in quadrature. We derive scalings of FIR size and surface brightness of local galaxies with FIR luminosity, with distance from the star-forming main-sequence, and with FIR color. Luminosities $L_{\rm FIR}\sim10^{11}$ L$_\odot$ can be reached with a variety of structures spanning 2 dex in size. Ultraluminous $L_{\rm FIR}>\sim10^{12}$ L$_\odot$ galaxies far above the main-sequence inevitably have small $R_{\rm e,70}\sim$0.5 kpc FIR emitting regions with large surface brightness, and can be close to optically thick in the FIR on average over these regions. Compared to these local relations, first ALMA sizes for the dust emission regions in high redshift galaxies, measured at somewhat longer rest wavelengths, suggest larger sizes at the same IR luminosity. We report a remarkably tight relation with 0.15 dex scatter between FIR surface brightness and the ratio of [CII] 158 μm emission and FIR emission – the so-called [CII]-deficit is more tightly linked to surface brightness than to FIR luminosity or FIR color. Among 33 z$\leq$0.1 PG QSOs with typical $L_{\rm FIR}/L_{\rm Bol,AGN}$ $\approx$0.1, 19 have a measured 70 μm half light radius, with median $R_{\rm e,70}$=1.1 kpc. This is consistent with the FIR size for galaxies with similar $L_{\rm FIR}$ but lacking a QSO, in accordance with a scenario where the rest FIR emission of these types of QSOs is, in most cases, due to host star formation.

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E-mail contact: lutz@mpe.mpg.de
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Ionized outflows in luminous type 2 AGNs at $z < 0.6$: no evidence for significant impact on the host galaxies.

M. Villar-Martín[1,2], S. Arribas[1,2], B. Emonts[1,2], A. Humphrey[3], C. Tadhunter[4], P. Bessiere[5], A. Cabrera Lavers[6], C. Ramos Almeida[6,7]

[1]Centro de Astrobiología (INTA-CSIC), Carretera de Ajalvir, km 4, 28850 Torrejón de Ardoz, Madrid, Spain
[2]Astro-UAM, UAM, Unidad Asociada CSIC, Facultad de Ciencias, Campus de Cantoblanco, E-28049, Madrid, Spain
[3]Instituto de Astrofísica e Ciências do Espaço, Universidade do Porto, CAUP, Rua das Estrelas, PT4150-762 Porto, Portugal
[4]Department of Physics and Astronomy, University of Sheffield, Sheffield S3 7RH, UK
[5]Universidad de Concepción, Departamento de Astronomía, Casilla 160-C, Concepción, Chile
[6]Instituto de Astrofísica de Canarias (IAC), C/ Vía Láctea, s/n, E38205 La Laguna,Tenerife, Spain
[7]Departamento de Astrofísica, Universidad de La Laguna, E-38206, La Laguna, Tenerife, Spain

We investigate the presence of extended ionized outflows in 18 luminous type 2 AGNs (11 quasars and 7 high luminosity Seyfert 2s) at 0.3<z<0.6 based on VLT-FORS2 spectroscopy. We infer typical lower limits on the radial sizes of the outflows $R_{\rm o}$ $\geq$several$\times$100 pc and upper limits $R_{\rm o}$ $\leq$1-2 kpc. Our results are inconsistent with related studies which suggest that large scale ($R_{\rm o}$ $\sim$several-15 kpc) are ubiquitous in QSO2. We study the possible causes of discrepancy and propose that seeing smearing is the cause of the large inferred sizes. The implications in our understanding of the feedback phenomenon are important since the mass $M_{\rm o}$ (through the density), mass injection $\dot{M}_{\rm o}$ and energy injection $\dot{E}_{\rm o}$ rates of the outflows become highly uncertain. One conclusion seems unavoidable: $M_{\rm o}$, $\dot{M}_{\rm o}$ and $\dot{E}_{\rm o}$ are modest or low compared with previous estimations. We obtain typically $M_{\rm o}$ $\leq$(0.4-22)$\times10^6$ M$_\odot$ (median 1.1×10^6 M$_\odot$) assuming n =1000 cm^{-3}. These are $\sim10^2$-10^4 times lower than values reported in the literature. Even under the most favorable assumptions, we obtain $\dot{M}_{\rm o}$ $\leq$10 M$_\odot$ yr^{-1} in general, 100-1000 times lower than claimed in related studies. Although the uncertainties are large, it is probable that these are lower than typical star forming rates. In conclusion, no evidence is found supporting that typical outflows can affect the interstellar medium of the host galaxies across spatial scales $\geq$1-2 kpc.

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E-mail contact: villarmm@cab.inta-csic.es
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The Complete Ultraviolet Spectrum of the Archetypal "Wind-Dominated" Quasar Mrk 231: Absorption and Emission from a High-Speed Dusty Nuclear Outflow

S. Veilleux[1,2], M. Meléndez[1,3,4], T. M. Tripp[5], F. Hamann[6,7], & D. S. N. Rupke[8]

[1]Department of Astronomy, University of Maryland, College Park, MD 20742, USA; veilleux@astro.umd.edu
[2]Joint Space-Science Institute, University of Maryland, College Park, MD 20742, USA
[3]NASA Goddard Space Flight Center, Greenbelt, MD 20771, USA
[4]Wyle Science, Technology and Engineering Group, 1290 Hercules Avenue, Houston, TX 77058 USA
[5]Department of Astronomy, University of Massachussetts, Amherst, MA 01003, USA
[6]Department of Physics and Astronomy, University of California, Riverside, CA 92507, USA
[7]Department of Physics & Astronomy, University of California, Riverside, CA 92521, USA
[8]Department of Physics, Rhodes College, Memphis, TN 38112, USA

New near- and far-ultraviolet (NUV and FUV) *HST* spectra of Mrk 231, the nearest quasar known, are combined with ground-based optical spectra to study the remarkable dichotomy between the FUV and NUV-optical spectral regions in this object. The FUV emission-line features are faint, broad, and highly blueshifted (up to ~ 7000 km s^{-1}), with no significant accompanying absorption. In contrast, the profiles of the NUV absorption features resemble those of the optical Na I D, He I, and Ca II H and K lines, exhibiting broad blueshifted troughs that overlap in velocity space with the FUV emission-line features and indicate a dusty, high-density and patchy broad absorption line (BAL) screen covering $\sim$90% of the observed continuum source at a distance less than $\sim$2 – 20 pc. The FUV continuum emission does not show the presence of any obvious stellar features and is remarkably flat compared with the steeply declining NUV continuum. The NUV (FUV) features and continuum emission have not varied significantly over the past $\sim$22 (3) years and are unresolved on scales $\sim$40 (170) pc. These results favor an AGN origin for the NUV – FUV line and continuum emission. The observed FUV line emission is produced in the outflowing BAL cloud system, while the Balmer lines arise primarily from the standard broad line region seen through the dusty BAL screen. Our data are inconsistent with the recently proposed binary black hole model. We argue instead that Mrk 231 is the nearest example of weak-lined "wind-dominated" quasars with high Eddington ratios and geometrically thick ("slim") accretion disks; these quasars are likely more common in the early universe.

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E-mail contact: veilleux@astro.umd.edu
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Search for Molecular Outflows in Local Volume AGN with *Herschel*-PACS

M. Stone[1], S. Veilleux[1,2], M. Meléndez[1,3,4], E. Sturm[5], J. Graciá-Carpio[5] and E. González-Alfonso[6]

[1] Department of Astronomy, University of Maryland, College Park, MD 20742-2421
[2] Joint Space-Science Institute, University of Maryland, College Park, MD 20742, USA
[3] NASA Goddard Space Flight Center, Greenbelt, MD 20771
[4] Wyle Science, Technology and Engineering Group, 1290 Hercules Avenue, Houston, TX 77058
[5] Max-Planck-Institute for Extraterrestrial Physics (MPE), Giessenbachstrasse 1, D-85748 Garching, Germany
[6] Universidad de Alcalá, Departamento de Física y Matemáticas, Campus Universitario, E-28871 Alcalá de Henares, Madrid, Spain

We present the results from a systematic search for galactic-scale, molecular (OH 119 μm) outflows in a sample of 52 Local Volume ($d < 50$ Mpc) Burst Alert Telescope detected active galactic nuclei (BAT AGN) with *Herschel*-PACS. We combine the results from our analysis of the BAT AGN with the published *Herschel*/PACS data of 43 nearby ($z < 0.3$) galaxy mergers, mostly ultraluminous infrared galaxies (ULIRGs) and QSOs. The objects in our sample of BAT AGN have, on average, $\sim 10 - 100$ times lower AGN luminosities, star formation rates (SFRs), and stellar masses than those of the ULIRG and QSO sample. OH 119 μm is detected in 42 of our BAT AGN targets. Evidence for molecular outflows (i.e. OH absorption profiles with median velocities more blueshifted than -50 km s^{-1} and/or blueshifted wings with 84-percentile velocities less than -300 km s^{-1}) is seen in only four BAT AGN (NGC 7479 is the most convincing case). Evidence for molecular inflows (i.e. OH absorption profiles with median velocities more redshifted than 50 km s^{-1}) is seen in seven objects, although an inverted P-Cygni profile is detected unambiguously in only one object (Circinus). Our data show that both the starburst and AGN contribute to driving OH outflows, but the fastest OH winds require AGN with quasar-like luminosities. We also confirm that the total absorption strength of OH 119 μm is a good proxy for dust optical depth as it correlates strongly with the 9.7 μm silicate absorption feature, a measure of obscuration originating in both the nuclear torus and host galaxy disk.

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The TANAMI Multiwavelength Program: Dynamic SEDs of Southern Blazars

F. Krauß[1,2], J. Wilms[1], M. Kadler[2], R. Ojha[3,4,5], R. Schulz[1,2,6], J. Trüstedt[1,2], P.G. Edwards[7], J. Stevens[7], E. Ros[8,9,10], W. Baumgartner[3], T. Beuchert[1,2], J. Blanchard[11], S. Buson[3], B. Carpenter[5], T. Dauser[1], S. Falkner[1], N. Gehrels[3], C. Gräfe[1,2], S. Gulyaev[12], H. Hase[13], S. Horiuchi[14], A. Kreikenbohm[1,2], I. Kreykenbohm[1], M. Langejahn[1,2], K. Leiter[1,2], J.E.J. Lovell[15], C. Müller[16], T. Natusch[12], R. Nesci[17], T. Pursimo[18], C. Phillips[7], C. Plötz[13], J. Quick[19], A.K. Tzioumis[7] and S. Weston[12]

[1] Dr. Remeis Sternwarte & ECAP, Universität Erlangen-Nürnberg, Sternwartstrasse 7, 96049 Bamberg, Germany
[2] Institut für Theoretische Physik und Astrophysik, Universität Würzburg, Emil-Fischer-Str. 31, 97074 Würzburg, Germany
[3] NASA, Goddard Space Flight Center, Greenbelt, MD 20771, USA
[4] University of Maryland, Baltimore County, Baltimore, MD 21250, USA
[5] Catholic University of America, Washington, DC 20064, USA
[6] ASTRON, the Netherlands Institute for Radio Astronomy, PO Box 2, 7990 AA Dwingeloo, Netherlands
[7] CSIRO Astronomy and Space Science, ATNF, PO Box 76, Epping, NSW 1710, Australia
[8] Max-Planck-Institut für Radioastronomie, Auf dem Hgel 69, 53121 Bonn, Germany
[9] Departament d'Astronomia i Astrofísica, Universitat de València, C/ Dr. Moliner 50, 46100 Burjassot, València, Spain
[10] Observatori Astronòmic, Universitat de València, C/ Catedrático José Beltrán no. 2, 46980 Paterna, València, Spain
[11] Departamento de Astronomía, Universidad de Concepción, Casilla 160, Chile
[12] Institute for Radio Astronomy and Space Research, Auckland University of Technology, Auckland 1010, New Zealand
[13] Bundesamt für Kartographie und Geodäsie, 93444 Bad Kötzting,Germany
[14] CSIRO Astronomy and Space Science, Canberra Deep Space Communications Complex, Tuggeranong, ACT 2901, Australia
[15] School of Mathematics & Physics, University of Tasmania, Private Bag 37, Hobart, Tasmania 7001, Australia
[16] Department of Astrophysics/IMAPP, Radboud University Nijmegen, Heyendaalseweg 135, 6525 AJ Nijmegen, Netherlands
[17] INAFIAPS, via Fosso del Cavaliere 100, 00033 Rome, Italy
[18] Nordic Optical Telescope, Apartado 474, 38700, Santa Cruz de La Palma, Spain
[19] Hartebeesthoek Radio Astronomy Observatory, Krugersdorp, South Africa

Simultaneous broadband spectral and temporal studies of blazars are an important tool for investigating active galactic nuclei (AGN) jet physics.We study the spectral evolution between quiescent and flaring periods of 22 radio-loud AGN through multi-epoch, quasi-simultaneous broadband spectra. For many of these sources these are the first broadband studies. We use a Bayesian block analysis of *Fermi*/LAT light curves in order to determine time ranges of constant flux for constructing quasi-simultaneous SEDs. The shapes of the resulting 81 SEDs are described by two logarithmic parabolas and a blackbody spectrum where needed. For low states the peak frequencies and luminosities agree well with the blazar sequence, higher luminosity implying lower peak frequencies. This is not true for sources in a high state. The γ-ray photon index in *Fermi*/LAT correlates with the synchrotron peak frequency in low and intermediate states. No correlation is present in high states. The black hole mass cannot be determined from the SEDs. Surprisingly, the thermal excess often found in FSRQs at optical/UV wavelengths can be described by blackbody emission and not an accretion disk spectrum.The "harder-when-brighter" trend, typically seen in X-ray spectra of flaring blazars, is visible in the blazar sequence. Our results for low and intermediate states, as well as the Compton dominance, are in agreement with previous results. Black hole mass estimates using the parameters from Bonchi (2013) are in agreement with some of the more direct measurements. For two sources, estimates disagree by more than four orders of magnitude, possibly due to boosting effects. The shapes of the thermal excess seen predominantly in flat spectrum radio quasars are inconsistent with a direct accretion disk origin.

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E-mail contact: Felicia.Krauss@fau.de
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Special Announcements

Fizeau exchange visitors program - special call for applications

2016-02-10

The Fizeau exchange visitors program in optical interferometry funds (travel and accommodation) visits of researchers to an institute of his/her choice (within the European Community) to perform collaborative work and training on one of the active topics of the European Interferometry Initiative. The visits will typically last for one month, and strengthen the network of astronomers engaged in technical, scientific and training work on optical/infrared interferometry. The program is open for all levels of astronomers (Ph.D. students to tenured staff). non-EU based missions will only be funded if considered essential by the Fizeau Committee. Applicants are strongly encouraged to seek also partial support from their home or host institutions.

The **deadline for applications is June 15**. Fellowships can be awarded for missions carried out until the end of 2016! For missions in 2017 please wait for further announcements!

Further informations and application forms can be found at www.european-interferometry.eu

The program is funded by OPTICON/FP7.

Please distribute this message also to potentially interested colleagues outside of your community!

Looking forward to your applications,
Josef Hron & Laszlo Mosoni
(for the European Interferometry Initiative)

E-mail contact: fizeau@european-interferometry.eu

Meetings

Interdisciplinary Workshop on Time Series Analysis

Paris, France
June 17, 2016

Webpage: https://indico.in2p3.fr/event/13186
Email: beckmann@apc.in2p3.fr

Modern day research has entered an age where, as experiments grow larger and more complex, the amount of recorded data is increasing exponentially. The analysis of the time-series data associated with these experiments is now beginning to push both computational power and resources to their limit. In order to analyse data from current and future experiments, new technology, and the development of more efficient and smarter algorithms, are required.

This workshop, supported by the Mastodons TimeClean proposal, brings together data analysts from the fields of astrophysics, biology, computing science and engineering, and will focus on advances in both academia and industry in both algorithmic development and computing technology in the area of time-series analysis.

Organizing Committee:
C. Cavet, E. Porter (APC), S. Bernard, T. Palpanas (University Paris Descartes), D. Horan (LLR), S. Juneau (CEA), V. Beckmann (CNRS / IN2P3)

Invited Speakers:
Anthony Bagnall (University of East Anglia), Dimitrios Emmanoulopoulos (University of Southampton), Uri Hasson (University of Trento), Dohy Hong (Safran Tech), Eric Chassande-Mottin (APC Paris), Themis Palpanas (University Paris Descartes)

Registration is free but mandatory