

Kazushi Iwasawa

ICREA Research Professor

Institut de Ciències del Cosmos (ICCUB)
Universitat de Barcelona

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Profile

X-ray astronomer. Observational study of star forming galaxies, cosmic supermassive black holes and their formation and evolution.

Research positions

ICREA RESEARCH PROFESSOR — 2010-present

ICCUB, Universitat de Barcelona, Barcelona (Spain)

COSMOS POST-DOCTORAL FELLOW — 2008-2009

INAF - Osservatorio Astronomico di Bologna (Italy)

MPE SENIOR FELLOW — 2005-2008

Max-Planck-Institut für extraterrestrische Physik (MPE), Garching bei München (Germany)

PPARC ADVANCED FELLOW — 2002-2005

Institute of Astronomy, University of Cambridge, Cambridge (UK)

PPARC POSTDOCTORAL RESEARCHER — 1996-2002

Institute of Astronomy, University of Cambridge, Cambridge (UK)

JSPS RESEARCH FELLOW — 1994-1995

Nagoya University, Department of Astrophysics (Japan)

Other Academic Positions

VISITING PROFESSOR — 2012-present

Ehime University, RCSCOE, Matsuyama (Japan)

ESO VISITING SCIENTIST — 2005

European Southern Observatory, Santiago (Chile)

CHARLES AND KATHERINE DARWIN RESEARCH FELLOW — 1996-1999

Darwin College, Cambridge (UK)

Education

Nagoya University, Nagoya (Japan) — PhD in Astrophysics, 1995

Nagoya University, Nagoya (Japan) — BSc in Astrophysics, 1990

Research outline

My research is an observational study of active galactic nuclei (AGN) and starburst galaxies, mainly at X-ray wavelengths using data obtained from major X-ray observatories in space, but also at other wavelengths in cosmic survey projects. The X-ray study is intended to understand the physics in high-energy phenomena observed in AGN and galaxies undergoing intense star formation while the survey projects aim at understanding the formation and evolution of supermassive black holes that power AGN. Presently, I am an active member of the multi-wavelength projects of GOALS (Great Observatories All-sky LIRGs Survey) for local luminous infrared galaxies, SHELLQs (Subaru High-z Exploration for Low-Luminosity Quasars) for the most distant quasars, and eROSITA-Subaru/HSC collaborations for new X-ray selected AGN.

Large projects involved

X-RAY OBSERVATORY MISSIONS

Japanese X-ray satellites (Ginga, ASCA, and Suzaku), Athena, LOFT, eXTP

COSMOS (The Cosmological Evolution Survey)

GOALS (The Great Observatories All-sky LIRG Survey)

SUBARU HYPER SUPRIME-CAM (HSC) SURVEY STRATEGIC PROGRAM

Referee for astronomical journals

Astrophysical Journal, Astronomy & Astrophysics, The Monthly Notices of the Royal Astronomical Society, Publications of the Astronomical Society of Japan, Nature, New Astronomy

Advisory work

TELESCOPE TIME ALLOCATION COMMITTEES

ESA's XMM-Newton, NASA's Chandra X-ray Observatory and NuSTAR,

European Southern Observatory (ESO), Anglo-Australian Telescope (AAT), Subaru Telescope

EVALUATION OF RESEARCH FUNDING PROPOSALS

UK, Israel, Czech Republic, Marie-Curie Fellowship

REVIEW PANEL OF NASA'S ASTROPHYSICAL DATA ANALYSIS PROGRAM (ADAP)

"Active galaxies and Quasars" category (2010, 2012)

Student supervising

Barbara De Marco, PhD thesis, "Iron line variability: a tool towards understanding the accretion flow around supermassive black holes" (2009)

Scuola Internazionale Superiore di Studi Avanzati (SISSA, Italy)

Artemi Camp Fariña, Treball fi de grau, "A sample study of luminous infrared galaxies with Chandra X-ray observatory" (2012)

Universitat de Barcelona

Víctor Moreno de la Cita, Master thesis, "Evolution of nuclear obscuration in active galactic nuclei" (2013)

Universitat de Barcelona

Cristina McGraph, Master thesis, "X-ray iron-line imaging of nearby Seyfert 2 galaxies" (2014)

Universitat de Barcelona

Núria Torres i Albà, Master thesis, "Probing the correlation between IR and X-ray emission in luminous infrared galaxies" (2015)

Universitat de Barcelona

Óscar Giménez Arran, Master thesis, "An X-ray census of highly accreting black holes in SDSS quasars" (2019)

Universitat de Barcelona

Núria Torres i Albà, PhD thesis "High energy processes in active galaxies" (2019)

Universitat de Barcelona

PhD Committees

Ángel Ruiz Camuñas, "Propiedades Multifrecuencia de Galaxias Hiperluminosas en el Infrarojo" (2010)

Universidad de Cantabria

Serena Falocco, "Espectros promedio en rayos X de Núcleos Galácticos Activos de muestreos profundos en rayos X" (2012)

Universidad de Cantabria

Mario Sanfrutos Carreras, "Lecciones del estudio de AGN a altas energías: absorción de rayos X y su variabilidad" (2016)

Universidad Complutense de Madrid

Elias Kammoun, “Clues on the physics of AGN through X-ray spectral, temporal and polarimetric analysis” (2018)

Scuola Internazionale Superiore di Studi Avanzati (SISSA, Italy)

Academic conference organization

THE 4TH FERRO COLLABORATION MEETING

Organizer, Barcelona (2010)

XMM DEEP SURVEY OF THE CHANDRA DEEP FIELD SOUTH

Organizer, Barcelona (2011)

THE 2ND SPANISH X-RAY ASTRONOMY 2015

Science Organizing Committee, Santander (2015)

Publications in peer-reviewed academic journals

Iwasawa K., Koyama K., Halpern J. P., 1992, “Pulse Period History and Cyclotron Resonance Feature of the X-Ray Pulsar 1E 2259+586”, *Publications of the Astronomical Society of Japan*, 44, 9

Koyama K., Awaki H., Iwasawa K., Ward M. J., 1992, “Hard X-Ray Emission from a Narrow-Line Radio Galaxy IC 5063 and Obscured Active Nucleus”, *The Astrophysical Journal*, 399, L129

Iwasawa K., Kunieda H., Awaki H., Koyama K., 1993, “Possible X-Ray Emission from a New Southern QSO HE 1029-1401”, *Publications of the Astronomical Society of Japan*, 45, L7

Iwasawa K., Koyama K., Awaki H., Kunieda H., Makishima K., Tsuru T., Ohashi T., Nakai N., 1993, “X-Ray Evidence for Seyfert Activity Buried in the Infrared Galaxy NGC 4945”, *The Astrophysical Journal*, 409, 155

Iwasawa K., Taniguchi Y., 1993, “The X-Ray Baldwin Effect”, *The Astrophysical Journal*, 413, L15

Serlemitsos P., Yaqoob T., Ricker G., Woo J., Kunieda H., Terashima Y., Iwasawa K., 1994, “The Complex X-Ray Spectra of Two High Redshift Quasars Observed with ASCA”, *Publications of the Astronomical Society of Japan*, 46, L43

Ueno S., Mushotzky R. F., Koyama K., Iwasawa K., Awaki H., Hayashi I., 1994, “ASCA Observations of NGC 1068”, *Publications of the Astronomical Society of Japan*, 46, L71

Fukazawa Y., Makishima K., Ebisawa K., Fabian A. C., Gendreau K. C., Ikebe Y., Iwasawa K., Kii T., Mushotzky R. F., Ohashi T., Otani C., Ricker G. R., Tamura T., Tanaka Y., Ueda Y., White N. E., 1994, “The Fluorescence-Dominated X-Ray Spectrum of the Spiral Galaxy NGC 6552”, *Publications of the Astronomical Society of Japan*, 46, L141

Iwasawa K., Yaqoob T., Awaki H., Ogasaka Y., 1994, “An ASCA Observation of the Seyfert 2 Galaxy Markarian 3”, *Publications of the Astronomical Society of Japan*, 46, L167

Fabian A. C., Shioya Y., Iwasawa K., Nandra K., Crawford C., Johnstone R., Kunieda H., McMahon R., Makishima K., Murayama T., Ohashi T., Tanaka Y., Taniguchi Y., Terashima Y., 1994, “Fe K Emission from the Hidden Quasar IRAS P09104+4109”, *The Astrophysical Journal*, 436, L51

Mushotzky R. F., Fabian A. C., Iwasawa K., Kunieda H., Matsuoka M., Nandra K., Tanaka Y., 1995, “Detection of broad iron K lines in active galaxies”, *Monthly Notices of the Royal Astronomical Society*, 272, L9

Corbet R. H. D., Smale A. P., Ozaki M., Koyama K., Iwasawa K., 1995, “The Spectrum and Pulses of 1E 2259+586 from ASCA and BBXRT Observations”, *The Astrophysical Journal*, 443, 786

Tanaka Y., Nandra K., Fabian A. C., Inoue H., Otani C., Dotani T., Hayashida K., Iwasawa K., Kii T., Kunieda H., Makino F., Matsuoka M., 1995, “Gravitationally redshifted emission implying an accretion disk and massive black hole in the active galaxy MCG-6-30-15”, *Nature*, 375, 659

- Iwasawa K., Kunieda H., Tawara Y., Awaki H., Koyama K., Murayama T., Taniguchi Y., 1995, "An IRAS-Selected Seyfert 2 Galaxy IRAS 18325-5926: The X-Ray Source and Nuclear Obscuration", *The Astronomical Journal*, 110, 551
- Fabian A. C., Nandra K., Reynolds C. S., Brandt W. N., Otani C., Tanaka Y., Inoue H., Iwasawa K., 1995, "On broad iron K α lines in Seyfert 1 galaxies", *Monthly Notices of the Royal Astronomical Society*, 277, L11
- Reynolds C. S., Fabian A. C., Nandra K., Inoue H., Kunieda H., Iwasawa K., 1995, "ASCA PV observations of the Seyfert 1 galaxy MCG-6-30-15: rapid variability of the warm absorber", *Monthly Notices of the Royal Astronomical Society*, 277, 901
- Iwasawa K., Fabian A. C., Mushotzky R. F., Brandt W. N., Awaki H., Kunieda H., 1996, "The broad iron K emission line in the Seyfert 2 galaxy IRAS 18325-5926", *Monthly Notices of the Royal Astronomical Society*, 279, 837
- Otani C., Kii T., Reynolds C. S., Fabian A. C., Iwasawa K., Hayashida K., Inoue H., Kunieda H., Makino F., Matsuoka M., Tanaka Y., 1996, "The Variable O_{VIII} Warm Absorber in MCG-6-30-15", *Publications of the Astronomical Society of Japan*, 48, 211
- Awaki H., Ueno S., Koyama K., Tsuru T., Iwasawa K., 1996, "ASCA Observation of NGC 1808", *Publications of the Astronomical Society of Japan*, 48, 409
- Brandt W. N., Halpern J. P., Iwasawa K., 1996, "ROSAT PSPC and HRI observations of the composite starburst/Seyfert 2 galaxy NGC 1672.", *Monthly Notices of the Royal Astronomical Society*, 281, 687
- Brandt W. N., Iwasawa K., Reynolds C. S., 1996, "A powerful and highly variable off-nuclear X-ray source in the composite starburst/Seyfert 2 galaxy NGC 4945.", *Monthly Notices of the Royal Astronomical Society*, 281, L41
- Iwasawa K., Fabian A. C., Reynolds C. S., Nandra K., Otani C., Inoue H., Hayashida K., Brandt W. N., Dotani T., Kunieda H., Matsuoka M., Tanaka Y., 1996, "The variable iron K emission line in MCG-6-30-15", *Monthly Notices of the Royal Astronomical Society*, 282, 1038
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- Dabrowski Y., Fabian A. C., Iwasawa K., Lasenby A. N., Reynolds C. S., 1997, "The profile and equivalent width of the X-ray iron emission line from a disc around a Kerr black hole", *Monthly Notices of the Royal Astronomical Society*, 288, L11
- Iwasawa K., Fabian A. C., Matt G., 1997, "The iron K line complex in NGC1068: implications for X-ray reflection in the nucleus", *Monthly Notices of the Royal Astronomical Society*, 289, 443
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- Iwasawa K., Fabian A. C., Brandt W. N., Crawford C. S., Almaini O., 1997, "AXJ1749+684: a narrow-emission-line galaxy with a flat X-ray spectrum", *Monthly Notices of the Royal Astronomical Society*, 291, L17
- Iwasawa K., Brandt W. N., Fabian A. C., 1998, "X-ray absorption in the strong FeII narrow-line Seyfert 1 galaxy Markarian507", *Monthly Notices of the Royal Astronomical Society*, 293, 251
- Murayama T., Taniguchi Y., Iwasawa K., 1998, "High-Ionization Nuclear Emission-Line Region in the Seyfert Galaxy Tololo 0109-383", *The Astronomical Journal*, 115, 460
- Iwasawa K., Fabian A. C., Brandt W. N., Kunieda H., Misaki K., Terashima Y., Reynolds C. S., 1998, "Detection of an X-ray periodicity in the Seyfert galaxy IRAS 18325-5926.", *Monthly Notices of the Royal Astronomical Society*, 295, L20

- Fabian A. C., Iwasawa K., McMahon R. G., Celotti A., Brandt W. N., Hook M., 1998, "The ASCA spectrum of the $z=4.72$ blazar GB 1428+4217.", *Monthly Notices of the Royal Astronomical Society*, 295, L25
- Fabian A. C., Barcons X., Almaini O., Iwasawa K., 1998, "Do nuclear starbursts obscure the X-ray background?", *Monthly Notices of the Royal Astronomical Society*, 297, L11
- Iwasawa K., Comastri A., 1998, "ASCA spectroscopy of the luminous infrared galaxy NGC 6240: X-ray emission from a starburst and a buried active nucleus", *Monthly Notices of the Royal Astronomical Society*, 297, 1219
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- Reynolds C. S., Iwasawa K., Crawford C. S., Fabian A. C., 1998, "X-ray spectroscopy of the broad-line radio galaxy 3C 111", *Monthly Notices of the Royal Astronomical Society*, 299, 410
- Lee J. C., Fabian A. C., Reynolds C. S., Iwasawa K., Brandt W. N., 1998, "AnRXTE observation of the Seyfert 1 galaxy MCG-6-30-15: X-ray reflection and the iron abundance", *Monthly Notices of the Royal Astronomical Society*, 300, 583
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- Iwasawa K., Allen S. W., Fabian A. C., Edge A. C., Etori S., 1999, "X-ray and lensing results on the cluster around the powerful radio galaxy 4C+55.16", *Monthly Notices of the Royal Astronomical Society*, 306, 467
- Iwasawa K., Fabian A. C., Young A. J., Inoue H., Matsumoto C., 1999, "Variation of the broad X-ray iron line in MCG-6-30-15 during a flare", *Monthly Notices of the Royal Astronomical Society*, 306, L19
- Iwasawa K., Fabian A. C., Nandra K., 1999, "ASCA and ROSAT observations of NGC 5548: discrepant spectral indices", *Monthly Notices of the Royal Astronomical Society*, 307, 611
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- Fabian A. C., Celotti A., Pooley G., Iwasawa K., Brandt W. N., McMahon R. G., Hoenig M. D., 1999, "Variability of the extreme $z=4.72$ blazar, GB 1428+4217", *Monthly Notices of the Royal Astronomical Society*, 308, L6
- Guainazzi M., Matt G., Antonelli L. A., Bassani L., Fabian A. C., Maiolino R., Marconi A., Fiore F., Iwasawa K., Piro L., 1999, "Soft X-ray spectroscopy of Compton-thick Seyfert 2 galaxies with BeppoSAX", *Monthly Notices of the Royal Astronomical Society*, 310, 10
- Lee J. C., Fabian A. C., Brandt W. N., Reynolds C. S., Iwasawa K., 1999, "First constraints on iron abundance versus reflection fraction from the Seyfert 1 galaxy MCG-6-30-15", *Monthly Notices of the Royal Astronomical Society*, 310, 973
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- Fabian A. C., Smail I., Iwasawa K., Allen S. W., Blain A. W., Crawford C. S., Etori S., Ivison R. J., Johnstone R. M., Kneib J.-P., Wilman R. J., 2000, "Testing the connection between the X-ray and submillimetre source populations using Chandra", *Monthly Notices of the Royal Astronomical Society*, 315, L8
- Guainazzi M., Molendi S., Vignati P., Matt G., Iwasawa K., 2000, "Mapping the circumnuclear matter of NGC 1068 in X-rays", *New Astronomy*, 5, 235
- Ruszkowski M., Fabian A. C., Ross R. R., Iwasawa K., 2000, "The evidence against Comptonization as a mechanism to explain the Fe K α line profile in MCG-6-30-15", *Monthly Notices of the Royal Astronomical Society*, 317, L11
- Fabian A. C., Iwasawa K., Reynolds C. S., Young A. J., 2000, "Broad Iron Lines in Active Galactic Nuclei", *Publications of the Astronomical Society of the Pacific*, 112, 1145
- Matt G., Fabian A. C., Guainazzi M., Iwasawa K., Bassani L., Malaguti G., 2000, "The X-ray spectra of Compton-thick Seyfert 2 galaxies as seen by BeppoSAX", *Monthly Notices of the Royal Astronomical Society*, 318, 173
- Lee J. C., Fabian A. C., Reynolds C. S., Brandt W. N., Iwasawa K., 2000, "The X-ray variability of the Seyfert 1 galaxy MCG-6-30-15 from long ASCA and RXTE observations", *Monthly Notices of the Royal Astronomical Society*, 318, 857
- Iwasawa K., Fabian A. C., Almaini O., Lira P., Lawrence A., Hayashida K., Inoue H., 2000, "X-ray absorption and rapid variability of the dwarf Seyfert nucleus of NGC 4395", *Monthly Notices of the Royal Astronomical Society*, 318, 879
- Fabian A. C., Sanders J. S., Etori S., Taylor G. B., Allen S. W., Crawford C. S., Iwasawa K., Johnstone R. M., Ogle P. M., 2000, "Chandra imaging of the complex X-ray core of the Perseus cluster", *Monthly Notices of the Royal Astronomical Society*, 318, L65
- Fox D. W., Lewin W. H. G., Fabian A., Iwasawa K., Terlevich R., Zimmermann H. U., Aschenbach B., Weiler K., Van Dyk S., Chevalier R., Rutledge R., Inoue H., Uno S., 2000, "The X-ray spectrum and light curve of Supernova 1995N", *Monthly Notices of the Royal Astronomical Society*, 319, 1154
- Iwasawa K., Fabian A. C., Etori S., 2001, "Chandra detection of reflected X-ray emission from the type 2 QSO in IRAS 09104+4109", *Monthly Notices of the Royal Astronomical Society*, 321, L15
- Fabian A. C., Sanders J. S., Etori S., Taylor G. B., Allen S. W., Crawford C. S., Iwasawa K., Johnstone R. M., 2001, "Chandra imaging of the X-ray core of Abell 1795", *Monthly Notices of the Royal Astronomical Society*, 321, L33
- Bianchi S., Matt G., Iwasawa K., 2001, "The circumnuclear X-ray reflectors in NGC 1068 and the Circinus galaxy", *Monthly Notices of the Royal Astronomical Society*, 322, 669
- Fabian A. C., Celotti A., Iwasawa K., McMahon R. G., Carilli C. L., Brandt W. N., Ghisellini G., Hook I. M., 2001, "PMN J0525-3343: soft X-ray spectral flattening in a blazar at $z=4.4$ ", *Monthly Notices of the Royal Astronomical Society*, 323, 373
- Ballantyne D. R., Iwasawa K., Fabian A. C., 2001, "Evidence for ionized accretion discs in five narrow-line Seyfert 1 galaxies", *Monthly Notices of the Royal Astronomical Society*, 323, 506
- Lee J. C., Ogle P. M., Canizares C. R., Marshall H. L., Schulz N. S., Morales R., Fabian A. C., Iwasawa K., 2001, "Revealing the Dusty Warm Absorber in MCG -6-30-15 with the Chandra High-Energy Transmission Grating", *The Astrophysical Journal*, 554, L13
- Fabian A. C., Celotti A., Iwasawa K., Ghisellini G., 2001, "The blazar GB 1428+4217: a warm absorber at $z=4.72$?", *Monthly Notices of the Royal Astronomical Society*, 324, 628

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- Iwasawa K., Matt G., Guainazzi M., Fabian A. C., 2001, "A hard X-ray constraint on the presence of an AGN in the ultraluminous infrared galaxy Arp 220", *Monthly Notices of the Royal Astronomical Society*, 326, 894
- Iwasawa K., Fabian A. C., Allen S. W., Etori S., 2001, "The intracluster iron distribution around 4C+55.16", *Monthly Notices of the Royal Astronomical Society*, 328, L5
- Boller T., Fabian A. C., Sunyaev R., Trümper J., Vaughan S., Ballantyne D. R., Brandt W. N., Keil R., Iwasawa K., 2002, "XMM-Newton discovery of a sharp spectral feature at ~ 7 keV in the narrow-line Seyfert 1 galaxy 1H 0707 - 49", *Monthly Notices of the Royal Astronomical Society*, 329, L1
- Fabian A. C., Ballantyne D. R., Merloni A., Vaughan S., Iwasawa K., Boller T., 2002, "How the X-ray spectrum of a narrow-line Seyfert 1 galaxy may be reflection-dominated", *Monthly Notices of the Royal Astronomical Society*, 331, L35
- Fabian A. C., Crawford C. S., Iwasawa K., 2002, "A Chandra observation of the distant radio galaxy B2 0902+343: a powerful obscured active galaxy", *Monthly Notices of the Royal Astronomical Society*, 331, L57
- Lee J. C., Iwasawa K., Houck J. C., Fabian A. C., Marshall H. L., Canizares C. R., 2002, "The Shape of the Relativistic Iron K α Line from MCG -6-30-15 Measured with the Chandra High Energy Transmission Grating Spectrometer and the Rossi X-Ray Timing Explorer", *The Astrophysical Journal*, 570, L47
- Shih D. C., Iwasawa K., Fabian A. C., 2002, "The continuum variability of MCG-6-30-15: a detailed analysis of the long 1999 ASCA observation", *Monthly Notices of the Royal Astronomical Society*, 333, 687
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Invited talks at academic conferences

Evidence for strong gravity in AGN plasma

IAU Symposium No. 188, Hot Universe, July 1998, Japan

X-ray properties of Ultraluminous Infrared Galaxies

X-ray astronomy 1999, Stellar Endpoints, AGN and the Diffuse X-ray Background, September 1999, Bologna, Italy

Broad iron line from active galaxies: strong gravitational effects around a black hole

Japan-Germany Workshop on AGN and the X-ray Background, November 1999, Tokyo, Japan

ASCA results on AGN

9th Marcel Grossman Meeting, July 2000, Roma, Italy

Obscured AGN population probed by X-ray observations

IAU Colloquium 184, AGN Surveys, June 2001, Byurakan, Armenia

X-ray emission from active nuclei and ISM in nearby galaxies

34th COSPAR Scientific Assembly, New X-ray results from clusters of galaxies and black holes, October 2002, Houston, USA

Broad iron lines in AGN

International AGN Workshop, Stellar-Mass, Intermediate-mass and Supermassive Black Holes, October 2003, Kyoto, Japan

X-ray observations of Arp220

Dust and Gas in ULIRGs: Tracing star formation and black hole growth at the centers of ultraluminous infrared galaxies, June 2006, Cornell University, Ithaca, USA

X-ray spectral variability of Seyfert galaxies

Microquasar Workshop 2007, Crete, Greece

X-ray variability of active galaxies and the relativistic effects

Probing Strong Gravity Near Black Holes, February 2010, Prague, Czech Republic

Hard X-ray emission from luminous infrared galaxies

Half a Century of X-ray Astronomy, September 2012, Mykonos, Greece

The iron lines in active galaxies in the COSMOS survey

Sesto Workshop 2015, From Dolomites to the event horizon (2nd edition), July 2013, Sesto, Italy

Highly ionized disk atmosphere in active galaxies

Sesto Workshop 2015, From Dolomites to the event horizon (3rd edition), July 2013, Sesto, Italy

X-ray evidence for highly ionized disc in active galaxies

The 29th General Assembly of the International Astronomical Union (FM6), August 2015, Honolulu, USA

Effects of strong gravity on X-ray spectra of active galaxies

Workshop on X-ray spectra of the accretion discs of supermassive black holes, August 2015, JAXA, Japan

Black holes in heavy obscuration of merging galaxies

Lorentz Center Workshop "The Quest for Multiple Supermassive Black Holes", November 2017, Leiden, Netherland

SHELLQs quasars from the Subaru HSC survey

AGN Research in Spain, July 2019, Santander, Spain

High-z quasars from the Subaru HSC survey

Sesto Workshop, "Hot Topics in Astronomy", July 2019, Sesto, Italy

Press releases

This little black hole works overtime

Royal Astronomical Society (24 August 2000)

Relevant paper: Iwasawa et al. 2000, MNRAS, 318, 879

Chandra “Hears” a black hole for the first time

NASA Headquarters and Chandra X-ray Observatory Center (9 September 2003)

Relevant paper: Fabian et al. (2003), MNRAS, 344, L43

Cambridge Scientists follow doomed matter on a ride around a black hole

Royal Astronomical Society and University of Cambridge (10 September 2004)

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Rare encounter between cosmic heavyweights

Kavli IPMU, University of Tokyo (27 August 2020)

Relevant paper: Silverman et al. (2020), ApJ, 899, 154

Web of the giant

ESO (1 October 20020)

Relevant paper: Mignoli et al. (2020), A&A, 642, L1