

CRISTIAN VIGNALI

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Observational astrophysicist. Interests include physics and evolution of Active Galactic Nuclei (AGN), galaxy evolution, high-redshift Universe, dual AGN, X-ray winds.

PERSONAL DATA

- Place and date of birth: Rimini, January 16th, 1972.
 - Nationality: Italian.
 - Address: Via B. Lanzarini, 10 – 40127 Bologna
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EDUCATION

Bologna University — PhD in Astronomy, February 2001 (thesis on *The High-Energy Large Area Survey: probing the multiwavelength properties of the sources making the hard X-ray background*); supervisors: Prof. G.G. Palumbo, Dr. A. Comastri.

Bologna University — Laurea Degree in Astronomy, July 1996 (110/110 *cum laude*; thesis *On the X-ray absorption in Active Galactic Nuclei*); supervisors: Prof. G.G. Palumbo, Dr. A. Comastri.

APPOINTMENTS

Dipartimento di Fisica e Astronomia, Università degli Studi di Bologna

Associate Researcher since September 2014

Researcher, January 2005 – September 2014

Dipartimento di Astronomia, Università di Bologna

Post-doctoral fellow, June 2004–January 2005

Osservatorio Astronomico di Bologna

Post-doctoral fellow, April 2003–May 2004

Dept. of Astronomy & Astrophysics, The Pennsylvania State University

Post-doctoral scholar, April 2001–March 2003

Osservatorio Astronomico di Bologna

Post-doctoral fellow, December 2000–March 2001

PROFESSIONAL ACTIVITIES

PARTIPATION IN FUTURE MISSIONS

- Member of the “High-redshift Universe” panel for the NASA mission *Constellation-X* (which became *IXO* together with the ESA mission *XEUS*, then *Athena+* and, finally, *Athena*, approved).
- Among the co-Is of the *XEUS* proposal for the ESA Cosmic Vision (future missions). The proposal was successful.
- Among the co-Is of the *Athena+* proposal for the ESA Cosmic Vision (future missions). The proposal was successful.
- Active member of the science working groups on “Formation and early growth of black holes” and “Accretion through cosmic time” in the *Athena* collaboration.
- Member of the *Euclid* Science work packages WP8 (“Multi-wavelength synergies”) and WP9 (“Type 1 and 2 AGN”).
- Member of the *Lynx* WG on large-scale structure and High-redshift Universe.
- Member of the *SPICA* collaboration.

GRANTS

- Awarded NASA grants for *Chandra* data in several Cycles.
- Multiple ASI grants for *Chandra*, *XMM-Newton*, *Swift* and *NuSTAR* data (both proprietary and from the archive).

An almost complete list is reported afterwards.

SOC/LOC

- Member of the SOC and LOC for the “X-ray Astronomy 2009. Present status, multi-wavelength approach and future perspectives” (Bologna, September 2009).
- Member of the LOC for the 9th AGN conference “Black Hole and Revelation” (Ferrara, May 2010).
- Member of the LOC for the Workshop “Whereabouts, Physical State and Metallicity of the Missing Baryons in the Local Universe” (Cervia, May 2012).
- Co-organizer of “The high-redshift Universe” Workshop (Bologna, June 2012).
- Member of the SOC for the XXL 2014 consortium meeting (Sexten, June 2014).
- Member of the LOC for the *NuSTAR* meeting 2015 (Bologna, March 2015).
- Member of the SOC for the XXL 2015 consortium meeting (Mljet, June 2015).
- Member of the SOC for the XXL 2016 consortium meeting (Mykonos, June 2016).
- Member of the SOC for the international conference “Hot spots in the XMM sky: cosmology from X-ray to radio” (Mykonos, June 2016).
- Member of the SOC for the EWASS 2016 SS05 “A multi-messenger view of mergers and multiple supermassive black holes” (Athens, July 2016).
- Member of the SOC for the XXL 2017 consortium meeting (St-Jakut, October 2017).
- Co-organizer of the Workshop at the Lorenz Center “The Quest for Multiple Supermassive Black Holes: A MultiMessenger View” (Leiden, November 2017).

AS A REFEREE

- Regular referee for some of the major astronomical journals (ApJ, ApJ Lett., AJ, MNRAS, A&A, New Astronomy, EXPA).
- Referee for *XMM-Newton* proposals.

- Referee for FIRB (MIUR) proposals.
- Referee for the Flanders Research Foundation (FWO) post-doctoral fellowships.
- Referee for the Rita Levi Montalcini fellowships.

ORGANIZER OF SEMINAR/LESSONS

- Co-organizer of official “Thursday” seminars at the Observatory/Astronomy Department (2009–2016).
- (Co-)organizer of internal cycles of seminars for PhD students:
 - ◊ “Physical properties of AGN”, 2010;
 - ◊ “Missing baryons”, 2011;
 - ◊ “Accretion onto compact objects and its role in shaping galaxies”, 2013;
 - ◊ “The high-redshift Universe, and the role of galaxies and AGN to cosmic reionization”, 2015;
 - ◊ “A multi-wavelength view of the Galactic Center, 2017.
- Member of the LOC for the PhD School of Astrophysics “Francesco Lucchin” held in Bertinoro, 18–23 Sept., 2016 (topics: *The Hot and Energetic Universe through high-resolution spectroscopy; Techniques and strategies to search for signs of Life in the Solar System: new results from Rosetta*).

ACADEMIC SUPERVISION ROLE

- Supervisor/co-supervisor of many Master and some PhD theses at the University of Bologna (some of “my” former and current students are listed below).
- Member of the *Collegio dei docenti* for PhD students in Astronomy.
- Member of the committee for the final evaluation of PhD students in Milano/Bicocca (three times). External referee for PhD thesis for the Rome Tre University (three times), for the University of Florence (once) and for Roma Tor Vergata University (once).
- Member of the committee for the PhD in Physics at Ferrara (2017).
- Member of the committee for a RTD-A position at Roma Tre University.

OTHER RELEVANT INFORMATION

- High-rank scientific evaluation (fascia A) for many years since 2007 by Osservatorio della Ricerca.
- ASN (National Scientific Evaluation, 2013): (G1: publications/G2: research activity/G3: scientific responsibility): excellent/excellent/very good.
- Italian AGN deputy of the XMM-XXL Survey (international collaboration).
- Co-chair of the XXL AGN WG.
- Member of the XXL-HSC joint working group.

MAIN INTERNATIONAL COLLABORATIONS

Member of the *Chandra*-COSMOS Legacy collaboration; *Chandra*/XMM-COSMOS collaborations; *Chandra*/XMM Deep Field South collaboration; *Chandra* Deep Field North collaboration; XXL collaboration (member of the steering committee, Italian deputy for AGN science, co-chair of the AGN working group, and member of the XXL-HSC joint working group); SUPER collaboration (PI: V. Mainieri, ESO); *Athena* collaboration;

REFEREED CONTRIBUTIONS TO ASTRONOMICAL MEETINGS

1999

CR1. Matsuoka M., Wang T.G., Kubo H., Mihara T., **Vignali C.**, Comastri A., Cappi M., Palumbo G.G.C.

X-ray observations of high-z radio loud/quiet quasars

1999, Proceedings of the COSPAR Symposium “The AGN/Normal Galaxy Connection”, Schmitt H.R., Kinney A.L., Ho L.C. eds., Advances in Space Research, Vol. 23, p. 1151

2000

CR2. **Vignali C.**, Comastri A., Cappi M., Palumbo G.G.C., Matsuoka M.

New ASCA perspectives on high-redshift quasars

2000, Proceedings of the 32th COSPAR Symposium “Broad Band X-ray Spectra of Cosmic Sources”, Makishima K., Piro L., Takahashi T. eds., Advances in Space Research, Vol. 25, p. 861

2001

CR3. **Vignali C.**, Comastri A., Cappi M., Palumbo G.G.C., Matsuoka M.

ASCA view on high-redshift radio-quiet quasars

2001, Proceedings for the Symposium “X-ray astronomy: Stellar Endpoints, AGN, and the X-ray background”, N. White, G. Malaguti & G. Palumbo eds., AIP Conf. Proc., Vol 599, p. 999

CR4. Fiore F., Antonelli L.A., Ciliegi P., Comastri A., Giommi P., La Franca F., Maiolino R., Matt G., Molendi S., Perola G.C., **Vignali C.**

The BeppoSAX HELLAS survey: on the nature of hard X-ray selected sources

2001, Proceedings for the Symposium “X-ray astronomy: Stellar Endpoints, AGN, and the X-ray background”, N. White, G. Malaguti & G. Palumbo eds., AIP Conf. Proc., Vol. 599, p. 111

2003

CR5. Alexander D.M., Bauer F.E., Brandt W.N., Garmire G.P., Hornschemeier A.E., Schneider D.P., **Vignali C.**

Resolving the Source Populations that contribute to the X-ray Background: The 2 Ms Chandra Deep Field-North Survey

2003, Proceeding of the International Workshop on “X-ray Surveys, in the light of the new observatories”, Astronomische Nachrichten, 324, 8

CR6. Hornschemeier A.E., Bauer F.E., Alexander D.M., Brandt W.N., W.L.W. Sargent, **Vignali C.**, Garmire G.P., Schneider D.P.

The Weak Outnumbering the Mighty: Normal Galaxies in Deep Chandra Surveys

2003, Proceeding of the International Workshop on “X-ray Surveys, in the light of the new observatories”, Astronomische Nachrichten, 324, 12

CR7. Comastri A., Brusa M., Mignoli M., and the HELLAS2XMM Team

Unconventional AGN in hard X-ray surveys

2003, Proceeding of the International Workshop on “X-ray Surveys, in the light of the new observatories”, Astronomische Nachrichten, 324, 28

CR8. **Vignali C.**, Brandt W.N., Schneider D.P., Garmire G.P., Kaspi S., Bauer F.E., Alexander D.M.

X-rays from the high-redshift Universe: The Chandra view

2003, Proceeding of the International Workshop on “X-ray Surveys, in the light of the new observatories”, *Astronomische Nachrichten*, 324, 163

CR9. Bauer F.E., **Vignali C.**, Alexander D.M., Brandt W.N., Garmire G.P., Hornschemeier A.E., Broos P.S., Townsley L.K., Schneider D.P.

The AGN Source Population in the Chandra Deep Field-North Survey: Constraints from X-ray Spectroscopy and Variability

2003, Proceeding of the International Workshop on “X-ray Surveys, in the light of the new observatories”, *Astronomische Nachrichten*, 324, 175

2004

CR10. Brandt W.N., **Vignali C.**, Schneider D.P., Alexander D.M., Anderson S.F., Bauer F.E., Fan X., Garmire G.P., Kaspi S., Richards G.T.

X-rays from the first massive black holes

2004, Proceedings of the 34th COSPAR Scientific Assembly on “New X-ray Results from Clusters of Galaxies and Black Holes”, Done C., Puchnarewicz E.M., Ward M.J. eds., *Advances in Space Research*, 34, 2478

CR11. Bauer F.E., **Vignali C.**, Alexander D.M., Brandt W.N., Garmire G.P., Hornschemeier A.E., Broos P.S., Townsley L.K., Schneider D.P.

X-ray spectroscopy and variability of the AGN source population detected in the 2 Ms Chandra Deep Field-North Survey

2004, Proceedings of the 34th COSPAR Scientific Assembly on “New X-ray Results from Clusters of Galaxies and Black Holes”, Done C., Puchnarewicz E.M., Ward M.J. eds., *Advances in Space Research*, 34, 2555

2006

CR12. **Vignali C.**, Mignoli M., on behalf of the HELLAS2XMM collaboration

On the exotic hard X-ray source populations in the Hellas2XMM survey

2006, Proceedings of the COSPAR Scientific Assembly, *Advances in Space Research*, 38, 1417

2010

CR13. Gilli R., Comastri A., **Vignali C.**, Ranalli P., Iwasawa K.

The evolution of obscured accretion

2010, Proceedings of the Workshop “X-ray Astronomy 2009. Present status, multi-wavelength approach and future perspectives” A. Comastri, M. Cappi, L. Angelini eds., *AIP Conference Series*, Vol. 1248, p. 359

CR14. Gandhi P., Horst H., Smette A., Honig S.F., Comastri A., Gilli R., **Vignali C.**, Duschl W.J.

Resolved mid-infrared imaging of AGN: an isotropic measure of intrinsic power

2010, Proceedings of the Workshop “X-ray Astronomy 2009. Present status, multi-wavelength approach and future perspectives” A. Comastri, M. Cappi, L. Angelini eds., *AIP Conference Series*, Vol. 1248, p. 431

CR15. Giustini M., Cappi M., Chartas G., Eracleous M., Palumbo G.G.C., **Vignali C.**

A deep look at the inner regions of the mini-BAL QSO PG 1126–041 with XMM-Newton

2010, Proceedings of the Workshop “X-ray Astronomy 2009. Present status, multi-wavelength approach and future perspectives” A. Comastri, M. Cappi, L. Angelini eds., *AIP Conference Series*, Vol. 1248, p. 437

CR16. Lanzuisi G., Civano F., Elvis M., Aldcroft T., Fruscione A., Fiore F., Mainieri V., **Vignali C.**

X-ray spectral analysis of C-COSMOS sources

2010, Proceedings of the Workshop “X-ray Astronomy 2009. Present status, multi-wavelength approach and future perspectives” A. Comastri, M. Cappi, L. Angelini eds., AIP Conference Series, Vol. 1248, p. 461

CR17. Piconcelli E., Lanzuisi G., Fiore F., Feruglio C., **Vignali C.**, Salvato M., Gruppioni C.

Type 2 Quasars at the heart of dust-obscured galaxies (DOGs) at high z

2010, Proceedings of the Workshop “X-ray Astronomy 2009. Present status, multi-wavelength approach and future perspectives” A. Comastri, M. Cappi, L. Angelini eds., AIP Conference Series, Vol. 1248, p. 493

CR18. Severgnini P., Caccianiga A., Della Ceca R., Moretti A., **Vignali C.**, La Parola V., Cusumano G.

Heavily obscured AGN in the local Universe

2010, Proceedings of the Workshop “X-ray Astronomy 2009. Present status, multi-wavelength approach and future perspectives” A. Comastri, M. Cappi, L. Angelini eds., AIP Conference Series, Vol. 1248, p. 511

2014

CR19. Ballo L., Severgnini P., Moretti A., Della Ceca R., Andreon S., Caccianiga A., Braitto V., Campana S., **Vignali C.**

Mining the XRT archive to probe the X-ray absorber structure in the AGN population

2014, proceeding of the “Swift: 10 Years of Discovery” conference, P. Caraveo, P. D’Avanzo, N. Gehrels and G. Tagliaferri eds., published online at

<http://pos.sissa.it/archive/conferences/233/122/SWIFT%2010.122.pdf>

CR20. Onori F., La Franca F., Riccia F., Brusa M., Sani E., Maiolino R., Bianchi S., Bongiorno A., Fiore F., Marconi A., **Vignali C.**

SWIFT/BAT AGN2 reveal broad emission lines in the NIR: the first virial measure of their black hole masses

2014, proceeding of the “Swift: 10 Years of Discovery” conference, P. Caraveo, P. D’Avanzo, N. Gehrels and G. Tagliaferri eds., published online at

<http://pos.sissa.it/archive/conferences/233/153/SWIFT%2010.153.pdf>

2016

CR21. De Rosa A., Bianchi S., Bogdanovic T., Decarli R., Heidt J., Herrero-Illana R., Husemann B., Komossa S., Kun E., Loiseau N., Guainazzi M., Paragi Z., Perez-Torres M., Piconcelli E., Schawinski K., **Vignali C.**

Unveiling multiple AGN activity in galaxy mergers

2016, proceedings paper for “XMM-Newton: The Next Decade” (Madrid, May 2016), 2017, Astron. Nachr., 338, 262

CR22. Pierre P., Adami C., Birkinshaw M., [...], **Vignali C.**, [...]

The XXL survey: first results and future

2016, proceedings paper for “XMM-Newton: The Next Decade” (Madrid, May 2016), 2017, Astron. Nachr., 338, 334

CR23. Comastri A., Iwasawa K., **Vignali C.**, Ranalli P., Lanzuisi G., Gilli R.

The XMM Deep Survey in the CDFS

2016, proceedings paper for “XMM-Newton: The Next Decade” (Madrid, May 2016), 2017,
Astron. Nachr., 338, 311