Peter Boorman

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✏ **15 papers**   👍 **179 citations**   📈 **h-index: 9**   💬 **37 presentations**

>_ Research Interests

Extragalactic astrophysics
- Classifying obscured Active Galactic Nuclei (AGN)
- AGN obscured fraction
- AGN evolution and feedback

Theoretical & computation
- Cosmic X-ray Background population synthesis
- Monte Carlo radiative transfer modelling
- Big data analysis and machine learning methods

Observational
- X-ray imaging and spectroscopy
- Optical spectroscopy and modelling
- Infrared photometric surveys

🎓 Education

10/2015–07/2019   ***Ph.D.*** in Astrophysics, Advisor: Dr. Poshak Gandhi, University of Southampton

10/2011–07/2015   ***Bachelors + Masters*** in Physics, University of Southampton
Result: 1st Class Honours & top of year

🏭 Employment History

09/2019–01/2020   ***Postdoctoral researcher:*** at the Astronomical Institute of the Czech Academy of Sciences

06/2019–09/2019   ***MoleGazer Data Analyst:*** > £21,000 funding awarded by the STFC Impact Acceleration Accounts to analyse the temporal evolution of naevi into melanoma in medical images using astronomical photometric techniques and machine learning algorithms

💡 Notable Activities

June 2020   ***Textbook co-author:*** wrote the X-ray imaging section of *Tutorial Guide to X-ray and Gamma-ray Astronomy* - link.springer.com/book/10.1007/978-981-15-6337-9

Aug 2020   ***Team Leader for the Lindau online Sciathon:*** led efforts to nourish a mutually respectful publishing process with researchers - sciathon.org/project/group-su/

July 2019   ***Lindau Nobel Laureate Attendee:*** Nominated & Selected 1/580 young researchers from 89 countries to attend the 69th Lindau Nobel Laureate Meeting in July 2019 with 39 Nobel Laureates of physics

July 2019   ***Max Planck Visitor:*** Selected to visit the Max Planck Institute for Extraterrestrial Physics in Munich following the Lindau Nobel laureate meeting.

2016–present	**Lead-analyst for the 4 Ms NuLANDS Survey** with *NuSTAR*, *Swift*, *XMM*-Newton, *Chandra* & *Suzaku*
Jan 2016	**Press Release:** American Astronomical Society Winter Meeting
2016	**Finalist:** Nationwide I'm a Scientist competition
2017 & 2018	**Two-time nominee:** University of Southampton Doctoral College Citizen & Community Award

🏆 Grants & Awards

2020	**Springer Thesis Award** - www.phys.soton.ac.uk/news/6711
2017	**£4,500 prize funding to organize a conference** - sites.google.com/site/broadbandlook/home
2016–2018	**£1,500 of Travel Grants** from Royal Astronomical Society to present contributed talks in Zürich & Chile
2018	**£200 Bursary** from the Institute of Physics to collaborate in Chile
July 2015	**Most Outstanding Performance:** Ranked top of 127 physics masters students at the University of Southampton - www.phys.soton.ac.uk/news/4744

★ Skills

Developer	`Python`, LaTeX, `tcl`
Expert	`Xspec`, `PyXspec`, `Sherpa`, `tcsh`, `Mac`, `unix`, `Topcat`, `git`, `Windows`
Experienced	`Fortran`, `Aladin`, `DS9`, `bash`, `HTML`
Languages	English (native), French (intermediate), Spanish (basic), Czech (basic)

📊 Awarded Observing Time

2020	*NuSTAR*; **Boorman, P.** *et al., Validating a new AGN selection as a means to construct the local census of AGN*, 200 ks Priority A, 100 ks Priority B
2020	*Swift*; **Boorman, P.**, Target of Opportunity, 7 ks
2020	*NuSTAR*; **Boorman, P.**, Directors Discretionary Time, 40 ks
2016–2019	*NuSTAR*; Gandhi, P., **Boorman, P.** *et al.,*; *The NuSTAR Local AGN N_H Distribution Survey, (NuLANDS), NuSTAR* Legacy Survey, 1 Ms
2019–2020	VISIR; Asmus, D. *et al., Toward a truly representative sample of local AGN*, 90 hours Rank B
2019	*XMM-Newton*; **Boorman, P.** *et al., Probing the Extreme X-ray Emission Mechanisms of Green Pea Galaxies*, 150 ks Priority B, 150 ks Priority C
2019	VLA; Borkar, A. *et al., Revealing the Elusive Power Source of Green Pea Galaxies*, 19 hours, Priority C
2019	*XMM-Newton*; Svoboda, J. *et al., What powers the galaxies with Lyman continuum escape?*, 100 ks Priority C
2020	X-SHOOTER; Asmus, D. *et al., X-SHOOTER follow-up of R90 AGN candidates from LASr*, X hours Filler time

2019 SALT; **Boorman, P.** *et al., Resolving AGN obscuration biases with robust optical classifications*, 7.5 hours Priority 3

2019 ALMA; Izumi, T. *et al., Diffuse cold atomic gas in Seyfert galaxies: to reveal multi-phase nature of AGN obscuration*

2019 ALMA; Alonso-Herrero, A. *et al., Resolving the molecular tori and nuclear outflows in the most luminous Seyferts in the local Universe*

2018 *XMM-Newton*; **Boorman, P.** *et al., Completing an Unbiased Census of AGN Obscuration*, 126 ks Priority C

2017 *NuSTAR*; LaMassa, S. *et al., Modeling the Obscuration Around Extreme AGN NGC 4968*, 40 ks Priority A

2016 *XMM-Newton*; **Boorman, P.** *et al., Quantifying obscuration bias in hard X-ray AGN selection*, 126 ks Priority C

👥 International Collaborations & Memberships

2019–present ***Member of the SHIVA Team:*** Searching for a Holistic Interpretation of Variable Accretion

2019–present ***Lindau Nobel Laureate Alumni***

2015–present ***Member of the NuSTAR AGN Science team:*** worldwide collaboration for AGN-related research using the *NuSTAR* satellite

2019–present ***Member of the GATOS Team:*** Galaxy Activity, Torus, and Outflows Survey.

2016–present ***Founded:*** Southampton Accretion Group

2016–present ***Memberships:*** Royal Astronomical Society & Institute of Physics

✎ Teaching Experience

Nov 2019 ***NuSTAR Data Analysis workshop:*** led a week-long data analysis workshop delivered to the Slovakia Institute of Technology for *NuSTAR* data analysis and products extraction

2016–2018 ***Demonstrator:*** University of Southampton undergraduate Python Computer Labs & Electromagnetism courses

🎙 Academic Service & Outreach

April 2020 ***Skype a Scientist:*** Answered questions with members of the public about black holes and space.

July 2019 ***Video Interviewee:*** Interview available worldwide about my research at the 69th Nobel Laureate Lindau Meeting

2015, 2019 ***Conference local organiser:*** XCalibur 2019 international high-resolution X-ray spectroscopy workshop - July 2019 & TORUS 2015 international conference - Sep 2015

2018 ***Academic paper referee:*** Astrophysical Journal, Astrophysics & Space Science, MDPI

Sep 2018 ***Charity work:*** Led efforts for DataDive hosted by DataKind UK - Southampton

2016–present ***Departmental organiser:*** Accretion meetings, Journal Clubs & weekly seminars

2016–2017 ***Observing:*** Keck/LRIS & Palomar/DBSpec; 3 nights total

July 2018 **_Nature Community writer:_** Nature Community article about _NuSTAR_

💬 Presentations, Seminars & Press Releases   37 Total.....

Press Releases

Jan 2016 _American Astronomical Society Winter Meeting_ (featured in global media outlets; NASA/JPL, The Guardian, The Independent, The Daily Mail, University of Southampton, Durham University)

Invited

Mar 2018
Contributed _ESO Headquarters Chile - Local hard X-ray selected AGN across the multi-wavelength spectrum_

Jun 2017
Seminar _Sussex University Astronomy Department_, UK

Contributed & Seminars

Jun 2020
Seminar _SPI-MAX_, University of Oxford, UK

Mar 2020
Seminar _Charles University_, Prague

Mar 2020
Seminar _Masaryk University_, Brno, Czechia

Feb 2020
Seminar _European Space Agency Center_, Madrid, Spain

Mar 2020
Contributed _Ondřejov Astronomical Institute of the Czech Academy of Sciences_, Czechia

Nov 2019
Contributed _AGN Spectral States workshop_, Vila Lanna

Nov 2019
Seminar _Cologne–Prague Meeting_, Prague Astronomical Institute, Czechia

Nov 2019
Talk _High Energy Kaffeerunde_, Max Planck Institute for Extraterrestrial Physics, Garching, Germany

July 2019
Talk _Max Planck Institute for Extraterrestrial Physics Infrared Group_, Garching, Germany

July 2019
Poster _XCalibur High-resolution X-ray Spectroscopy Meeting_, Winchester, UK

July 2019
Poster _69th Lindau Nobel Laureate Meeting_, Germany

Jun 2019
Seminar _Prague Relativistic Astrophysics Group_, Prague Astronomical Institute, Czechia

Dec 2018 ***Contributed***	*TORUS2018 meeting*, Puerto Varas, Chile
Dec 2018 ***Seminar***	*Universidad Diego Portales*, Santiago, Chile
Oct 2018 ***Talk***	*Harvard Centre for Astrophysics Quasar Tea*, Cambridge, Boston
Oct 2018 ***Seminar***	*Harvard Black Hole Initiative*, Cambridge, Boston
Oct 2018 ***Seminar***	*MIT High Energy Group Meeting*, Cambridge, Boston
July 2018 ***Seminar***	*University of Hertfordshire*, UK
May 2018 ***Seminar***	*Institute for Cosmology & Gravitation*, University of Portsmouth, UK
Mar 2018 ***Seminar***	*Pontificia Universidad Católica*, Santiago, Chile
Apr 2018 ***Contributed***	*From Micrometres to Megaparsecs*, University of Southampton, UK
Oct 2017 ***Talk***	*Bun Club Talk*, Institute of Astronomy, University of Cambridge, UK
Sep 2017 ***Contributed***	*New Results in X-ray Astronomy & Athena Consortium Meeting*, University of Durham, UK
Sep 2017 ***Poster***	*New Results in X-ray Astronomy & Athena Consortium Meeting*, University of Durham, UK
Feb 2017 ***Poster***	*Timing and Spectroscopy in the New Era of X-ray Astronomy*, Royal Astronomical Society Specialist Discussion Meeting, Burlington House, UK
Nov 2016 ***Seminar***	*AstroGrav Seminar*, University of Southampton, UK
Nov 2016 ***Seminar***	*NuSTAR group*, Caltech, USA
Nov 2016 ***Poster***	*HEX-P Concept & NuSTAR Science Meeting*, Caltech, USA
Oct 2016 ***Poster***	*David Gross Nobel Lecture*, University of Southampton, UK
Sep 2016 ***Contributed***	*New Results in X-ray Astronomy*, Mullard Space Science Laboratory, UK
Feb 2016 ***Contributed***	*X-ray View of Black Hole Activity in the Local Universe*, ETH, Zürich

Outreach

Mar 2019
Outreach Talk *Three-Minute Thesis*, University of Southampton, UK

Feb 2019
Outreach Talk *Basingstoke Astronomy Society*, UK

2016–present
Planetarium Shows > 20 *University of Southampton Astrodome* shows, University of Southampton, UK

✍ Publication List — 15 Total, 179 Citations, h-index: 9

1. *IC 3639 – A New Bona Fide Compton-Thick AGN Unveiled by NuSTAR*
   Boorman, P., Gandhi, P. Harrison, F., Ricci, C., Stern, D. *et al.* 2016, ApJ, 833, 245.

2. *An Iwasawa-Taniguchi effect for Compton-thick AGN*
   Boorman P., Gandhi P., Baloković M., Brightman M. *et al.* 2018, MNRAS, 477, 3775.

3. *NuSTAR Uncovers an Extremely Local Compton-thick AGN in NGC 4968*
   LaMassa, S., Yaqoob, T., **Boorman, P.** *et al.* 2019, ApJ, 887, 173.

4. *Chandra Reveals Heavy Obscuration and Circumnuclear Star Formation in Seyfert 2 Galaxy NGC 4968*
   LaMassa, S., Yaqoob, T., Levenson, N., **Boorman, P.** *et al.* 2017, ApJ, 835, 91.

5. *The NuSTAR Extragalactic Surveys: Source Catalog and the Compton-thick Fraction in the UDS Field*
   Masini, A., Civano, F., Comastri, A., Fornasini, F., Ballantyne, D. R., Lansbury, G., Treister, E., Alexander, D., **Boorman, P.** *et al.* 2018, ApJ, 235, 17.

6. *X-Ray Bolometric Corrections for Compton-thick AGN*
   Brightman, M., Baloković, M., Ballantyne, D., Bauer, F., **Boorman, P.** *et al.* 2017, ApJ, 844, 10.

7. *The weak Fe fluorescence line and long-term X-ray evolution of the Compton-thick active galactic nucleus in NGC 7674*
   Gandhi, P., Annuar, A., Lansbury, G., Stern, D., Alexander, D., Bauer, F., Bianchi, S., Boggs, S., **Boorman, P. G.** *et al.* 2017, MNRAS, 467, 4606.

8. *The X-Ray Reflection Spectrum of the Radio-loud Quasar 4C 74.26*
   Lohfink, A., Fabian, A., Ballantyne, D., Boggs, S., **Boorman, P.** *et al.* 2017, ApJ, 841, 80.

9. *Broad-band X-ray spectral analysis of the Seyfert 1 galaxy GRS 1734-292*
   Tortosa, A., Marinucci, A., Matt, G., Bianchi, S., La Franca, F., Ballantyne, D., **Boorman, P.** *et al.* 2017, MNRAS, 466, 4193.

10. *A New Compton-thick AGN in our Cosmic Backyard: Unveiling the Buried Nucleus in NGC 1448 with NuSTAR*
    Annuar, A., Alexander, D., Gandhi, P., Lansbury, G., Asmus, D., Ballantyne, D., Bauer, F., Boggs, S., **Boorman, P.** *et al.* 2017, ApJ, 836, 165.

11. *NuSTAR Observations of WISE J1036+0449, a Galaxy at $z \sim 1$ Obscured by Hot Dust*
    Ricci, C., Assef, R., Stern, D., Nikutta, R., Alexander, D., Asmus, D., Ballantyne, D., Bauer, F., Blain, A., Boggs, S., **Boorman, P.** *et al.* 2017, ApJ, 835, 105.

12. *The Phoenix galaxy as seen by NuSTAR*
Masini, A., Comastri, A., Puccetti, S., Baloković, M., Gandhi, P., Guainazzi, M., Bauer, F., Boggs, S., **Boorman, P.** *et al.* 2017, A&A, 597, 100.

13. *Unveiling the 100 pc scale nuclear radio structure of NGC 6217 with e-MERLIN and the VLA*
Williams, D., McHardy, I., Baldi, R., Beswick, R., Argo, M., Beri, A., **Boorman, P.** *et al.* 2019, MNRAS, 486, 4962.

14. *Local AGN survey (LASr): I. Galaxy sample, infrared colour selection, and predictions for AGN within 100 Mpc*
Asmus, D., Greenwell, C. L., Gandhi, P., **Boorman, P.** *et al.* 2020 MNRAS, 494, 1784.

15. *NuSTAR Observations of Four Nearby X-ray Faint AGN: Low Luminosity or Heavy Obscuration?*
Annuar, A., Alexander, D. M., Gandhi, P., Lansbury, G. B., Asmus, D., Balokovic, M., Ballantyne, D. R., Bauer, F. E., **Boorman, P.** *et al.* 2020 MNRAS, 497, 229.