Dr. Peter Boorman – CV

⌖ Astronomický ústav AV ČR, Praha, Czechia

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> ✏ **24 papers**   👍 **259 citations**   📈 **h-index: 11**   💬 **>45 presentations**

>_ Research Interests

Extragalactic astrophysics	- AGN obscured fraction, evolution & feedback - AGN in dwarf galaxies - The Supermassive Black Hole spin census
Theoretical & computation	- Cosmic X-ray Background population synthesis - Monte Carlo radiative transfer modelling - Big data analysis and machine learning methods
Observational	- X-ray spectroscopic modelling & imaging analysis - Large optical & infrared surveys - (Astro)statistical techniques for fitting models to data

🎓 Education

10/2015–07/2019	***Ph.D.*** in Astrophysics, Advisor: Professor 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–present	***Postdoctoral researcher:*** Astronomical Institute of the Czech Academy of Sciences
06/2019–09/2019	***MoleGazer Data Analyst:*** STFC Impact Acceleration Accounts grant to analyse the temporal evolution of naevi into melanoma in medical images using astronomical photometric techniques and machine learning algorithms

🏆 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	*£1,700 of Travel Grants* from Royal Astronomical Society and the Institute of Physics to present conference contributed talks in Zürich & Chile
July 2015	*Most Outstanding Performance:* Ranked top of my Masters year (127 students total) at University of Southampton - www.phys.soton.ac.uk/news/4744

♀ Notable Activities

June 2020	***Textbook co-author:*** wrote the X-ray imaging section of the *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 write a paper highlighting steps needed for a mutually respectful publishing process - sciathon.org/project/group-su/
July 2019	***Lindau Nobel Laureate Attendee:*** Nominated & selected as 1/580 young researchers from 89 countries to attend the 69th Lindau Nobel Laureate Meeting with 39 Nobel Laureates of physics
2016–present	***Lead-analyst:*** for the *NuSTAR* Local AGN N_H Distribution Survey
Jan 2016	***Press Release:*** American Astronomical Society Winter Meeting

★ Skills

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

👥 International Collaborations & Memberships

2021–present	*Member of the Athena/X-IFU consortium:* responsible for testing spin constraints from high-resolution X-ray spectroscopy
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	*Memberships:* Royal Astronomical Society & Institute of Physics

✎ Teaching Experience

Aug 2021	*Bayesian X-ray Analysis:* Led two lectures & tutorials on Bayesian X-ray Analysis at the Chandra Data Science workshop 2021
Jul 2021	*Statistical tools for X-ray spectral fitting:* Gave a lecture about X-ray spectral fitting and Bayesian X-ray Analysis in Hradec Nad Moravicí, Czechia
May 2021	*AGN lecture series:* Contributed to the Prague AGN lecture series, with lectures on AGN obscuration & AGN identification to astrophysics Masters & PhD students in Czechia
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, responsible for helping students with problems and marking assessments

🎙 Academic Service & Outreach

Oct–Dec 2021	*Seminar organiser:* Prague AGN seminar series autumn 2021 - pragueagn.wordpress.com/seminars
April 2020	*Skype a Scientist:* Discussed space studies (including black holes) with members of the public
July 2019	*Video interview:* Youtube interview about my work at the 69th Nobel Laureate Lindau Meeting
2015, 2019	*Conference local organiser:* XCalibur 2019 international high-resolution X-ray spectroscopy workshop & TORUS 2015 international conference
2018	*Academic paper referee:* ApJ, ApJ Letters, Astrophysics & Space Science, MDPI
Sep 2018	*Charity work:* Led efforts for DataDive hosted by DataKind UK - Southampton
July 2018	*Astrotweeps*: spent a week describing my research on the Astrotweeps Twitter account
2016–2019	*Departmental organiser:* Accretion meetings, Journal Clubs & weekly seminars
July 2018	*Nature Community writer:* Nature Community article about *NuSTAR*

📊 Awarded Observing Time

2020	*NuSTAR*; **Boorman, P.** *et al.,* 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 Legacy Survey*; Gandhi, P., **Boorman, P.** *et al., NuLANDS*, 972.1 ks
2019	*XMM-Newton*; **Boorman, P.** *et al.,* 150 ks Priority B, 150 ks Priority C

2019 SALT; **Boorman, P.** *et al.,* 7.5 hours Priority 3
2018 *XMM-Newton*; **Boorman, P.** *et al.,* 126 ks Priority C
2016 *XMM-Newton*; **Boorman, P.** *et al.,* 126 ks Priority C

2020 *XMM-Newton*; Svoboda, J. *et al.,* 110 ks Priority B
2020 *XMM-Newton + NuSTAR*; Greenwell, C. *et al.,* 28 + 50 ks Priority B
2019, 2020 VISIR; Asmus, D. *et al.,* 90 hours Rank B
2019, 2020 VLA; Borkar, A. *et al.,* 19 hours, Priority C
2020 X-SHOOTER; Asmus, D. *et al.,* 15.3 hours, Filler time
2017 *NuSTAR*; LaMassa, S. *et al.,* 40 ks Priority A

💬 (Highlighted) Presentations >45 Total (contributed, seminars, lectures & talks)

Press Release

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

Nov-2021 **Seminar** *Mullard Space Science Laboratory seminar*

Mar 2018 **Contributed** *ESO Headquarters Chile - Local hard X-ray selected AGN across the multi-wavelength spectrum*

Jun 2017 **Seminar** *Sussex University Astronomy Department seminar*

Contributed, Seminars & Lectures

Jul-2021 **Contributed** *Hradec nad Moravicí Bayesian X-ray Analysis lecture & tutorial*

Feb-2021 **Contributed** *Advanced Technologies Research Institute, Slovakia Sandwich Workshop talk*

Jul-2020 **Contributed** *Online, Swift/BAT AGN Spectroscopic Survey meeting talk*

Nov-2019 **Contributed** *Vila Lanna, Prague AGN Spectral States workshop*

Sep-2019 **Contributed** *Bologna X-ray Astronomy 2019*

Sep-2019 **Contributed** *Mullard Space Science Laboratory New Results in X-ray Astronomy and Athena Consortium Meeting*

Dec-2018 **Contributed** *Puerto Varas, TORUS2018*

Apr-2018 **Contributed** *University of Southampton, From Micrometres to Megaparsecs*

Sep-2017 **Contributed** *Durham University, New Results in X-ray Astronomy and Athena Consortium Meeting*

Sep-2016 **Contributed** *Mullard Space Science Laboratory New Results in X-ray Astronomy and Athena Consortium Meeting*

Feb-2016 **Contributed** *ETH, Zurich X-ray View of Black Hole Activity in the Local Universe*

Nov-2021 **Seminar**	MSSL, UK Masaryk University, constitutional seminar
Mar-2020 **Seminar**	Astronomical Institute of the Czech Academy of Sciences, Institutional Seminar
Mar-2020 **Seminar**	Brno, Czechia, Masaryk University seminar
Feb-2020 **Seminar**	ESAC Madrid, European Space Agency Centre seminar
Feb-2020 **Seminar**	Charles University, Prague, Czechia
Jun-2019 **Seminar**	Astronomical Institute of the Czech Academy of Sciences Prague seminar
Dec-2018 **Seminar**	Santiago, Universidad Diego Portales de Chile seminar
Oct-2018 **Seminar**	BHI, Cambridge, Boston Black Hole Initiative seminar
Jul-2018 **Seminar**	University of Hertfordshire, University of Hertfordshire departmental seminar
May-2018 **Seminar**	University of Portsmouth, Institute of Cosmology and Gravitation seminar
Mar-2018 **Seminar**	Santiago, Pontificia Universidad Católica de Chile seminar
Aug-2021 **Lectures**	Chandra Data Science Bayesian X-ray Analysis lectures & tutorial
May-2021 **Lectures**	Online lectures on AGN obscuration & identification to Masters & PhD students from Czechia
Nov-2020 **Lecture**	IISER Mohali, Punjab, India, Introduction to Compton-thick AGN
Nov-2019 **Lectures**	Slovakia Institute of Technology week-long NuSTAR tutorial workshop

✏ Publication List   24 Total, 259 Citations, h-index: 11.........................

Papers (peer-reviewed & accepted)

24. *LeMMINGs IV: The X-ray properties of a statistically-complete sample of the nuclei in active and inactive galaxies from the Palomar sample*
Williams, D. R. A., Pahari, M., Baldi, R. D., McHardy, I. M., Mathur, S., Beswick, R. J., Beri, A., **Boorman, P.** *et al.*
2021 MNRAS.tmp.3026W

23. *Compton-Thick AGN in the NuSTAR era VII. A joint NuSTAR, Chandra and XMM-Newton analysis of two nearby, heavily obscured sources*
Traina, A., Marchesi, S., Vignali, C., Torres-Albà, N., Ajello, M., Pizzetti, A., Silver, R., Zhao, X., Ananna, T., Baloković, M., **Boorman, P.** *et al.* 2021 ApJ, 922, 159

22. *Compton-Thick AGN in the NuSTAR era VI: The observed Compton-thick fraction in the Local Universe*
Torres-Albà, N., Marchesi, S., Zhao, X., Ajello, M., Silver, R., Ananna, T. T., Baloković, M., **Boorman, P.** *et al.*
2021 ApJ, 922, 252

21. *The Galaxy Activity, Torus, and Outflow Survey (GATOS). II. Torus and polar dust emission in nearby Seyfert galaxies*
Alonso-Herrero, A., García-Burillo, S., Hönig, S. F., García-Bernete, I., Ramos Almeida, C., González-Martín, O., López-Rodríguez, E., **Boorman, P.** *et al.* 2021 A&A, 652A, 99

20. *The Galaxy Activity, Torus, and Outflow Survey (GATOS). I. ALMA images of dusty molecular tori in Seyfert galaxies*
García-Burillo, S., Alonso-Herrero, A., Ramos Almeida, C., González-Martín, O., Combes, F., Usero, A., Hönig, S., Querejeta, M., Hicks, E. K. S., Hunt, L. K., Rosario, D., Davies, R., **Boorman, P.** *et al.* 2021 A&A, 652A, 98

19. *A candidate optically quiescent quasar lacking narrow emission lines*
Greenwell, C., Gandhi, P., Stern, Daniel, **Boorman, P.** *et al.* 2021 MNRAS, 503L, 80

18. *BAT AGN Spectroscopic Survey-XXIII. A New Mid-Infrared Diagnostic for Absorption in Active Galactic Nuclei*
Pfeifle, R., Ricci, C., **Boorman, P.** *et al.* 2021, accepted, arXiv-210204412

17. *Multi-phase environment of Centaurus A galaxy*
Borkar, A., Adhikari, T. P., Różańska, A., Markowitz, A. G., **Boorman, P.** *et al.* 2020 MNRAS, 500, 3536

16. *NuSTAR Survey of Obscured Swift/BAT-selected Active Galactic Nuclei: II. Median High-energy Cutoff in Seyfert II Hard X-ray Spectra*
Baloković, M., Harrison, F. A., Madejski, G., Comastri, A., Ricci, C., Annuar, A., Ballantyne, D. R., **Boorman, P.** *et al.* 2020 ApJ, 905, 41

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

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

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

12. *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

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

10. *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

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

8. *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.

7. *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

6. *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

5. *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

4. *NuSTAR Observations of WISE J1036+0449, a Galaxy at z ∼ 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

3. *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

2. *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

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

Books (published)

2. *The Accretion and Obscured Growth of Supermassive Black Holes – First Constraints on the Local Heavily Obscured AGN Fraction with NuSTAR*
Boorman, P., 2021, ISBN: 978-3-030-603-60-1, Springer, Cham, (2021)

1. *Tutorial Guide to X-ray and Gamma-ray Astronomy: Data Reduction and Analysis, Chapter 7: Data Analysis*
Alston, W., **Boorman, P.**, Bulgarelli, A., Parker, M., 2020, Edited by Cosimo Bambi. ISBN: 978-981-15-6336-2, Springer, pp.229