

ELIOT AYACHE

3rd year Ph.D. student in
computational astrophysics

University of Bath, UK

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HIGHER EDUCATION

2017 - 2021	Ph.D. , Computational Astrophysics, UNIVERSITY OF BATH Supervisor: Dr. Hendrik van Eerten
2015 - 2017	M.Sc. , Astronomy, Astrophysics and Space Engineering, OBSERVATOIRE DE PARIS, PSL UNIV.
2013 - 2016	Diplôme d'ingénieur (equiv M.Sc. Executive Engineering), MINES PARISTECH, PSL UNIV.
2011 - 2013	Preparatory classes , Physics and Chemistry, LYCÉE SAINT-LOUIS, PARIS Ranked 79 th out of 3489 (National “Grandes Ecoles” admission competitive exam)

RESEARCH EXPERIENCE

2017 (Mar-Jun)	Observatoire de Paris, LUTH <i>Numerical modeling of the dynamics of stratified AGN jets</i> Supervisor: Dr. Zakaria Meliani
2016 (May-Aug)	Observatoire de Genève, Exoplanets Team <i>Characterisation of the density and internal structure of low-mass exoplanets</i> Supervisor: Prof. François Bouchy
2015 (Jun-Sept)	NASA Jet Propulsion Laboratory <i>Study of high-redshift galaxy clusters in preparation of the Euclid Mission</i> Supervisors: Prof. Simona Mei and Prof. James Bartlett
2014 (Sept-Feb)	Observatoire de Paris, GEPI <i>Automatic estimation of galaxy morphology using neural networks</i> Supervisors: Dr. Marc Huertas-Company

PROFESSIONAL GRANTS

2018	Travel award (DIAS school in high-energy astro), ROYAL ASTRONOMICAL SOCIETY	£450
2017	Fully funded 3.5 years Ph.D. Studentship, UNIVERSITY OF BATH	£50,000
•	Computer time	
2020	GW4-Isambard Tier-2 HPC Center, UNIVERSITY OF BATH	40,000 node-hrs

AWARDS

2020	Poster Prize 3 rd place, LMS-Bath symposium 2020
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SELECTED CONTRIBUTED TALKS AND WORKSHOPS

2020	(Canceled) RAS National Astronomy Meeting Workshop: “Introduction to Machine Learning for Astrophysics” Workshop: “Machine Learning Methods for Astrophysics” Bath, UK
2020	RAS specialist meeting: Radiation Hydrodynamics “From Dynamics to radiation: Simulating GRB afterglow flares on a moving mesh” London, UK
2019	Yamada conference LXXI: GRBs in the gravitational wave era “Moving-mesh simulations of GRB afterglow flares” Yokohama, Japan
2018	Bath, Bristol, Exeter and Cardiff astrophysics student seminar “The dynamics of relativistic stratified AGN jets” Bath, UK

SELECTED POSTERS

2020	RAS Early-Career Poster Exhibition (2 posters)	Online
2020	LMS-Bath symposium 2020: Mathematics of Machine Learning	Online
2019	SKA Meeting: A Centenary of Astrophysical Jets	Jodrell Bank Obs, UK

OUTREACH

2019	Pint of Science Talk: “ <i>Badly Behaved Gamma-Ray Bursts</i> ”	Bath, UK
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SUPERVISION

2019 – 2020	Claire Anderson , B.Sc. project student (primary advisor), UNIVERSITY OF BATH
2019 – 2020	Tara Howard , B.Sc. project student (primary advisor), UNIVERSITY OF BATH
2017 – 2018	Marina Solomou , B.Sc. project student (advisor), UNIVERSITY OF BATH

TEACHING

- Lecturing
 - 2019 – 2020 2nd year Physics: C programming labs, UNIVERSITY OF BATH
- Demonstrating
 - 2019 – 2020 3rd year Physics: Computational Astrophysics, UNIVERSITY OF BATH
 - 2018 – 2019 3rd year Physics: Computational Physics B, UNIVERSITY OF BATH
 - 2017 – 2020 2nd year Physics: C programming labs, UNIVERSITY OF BATH

OBSERVING EXPERIENCE

Radial velocity measurements:	HARPS, La Silla ESO, Chile SOPHIE, Observatoire de Haute-Provence, France
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COMPUTING, PROGRAMMING AND DATA ANALYSIS

Languages:	C/C++, Fortran, Python, Bash, Java, HTML5/CSS
Packages:	OpenMP, MPI, HDF5, Scikit-Learn, Tensorflow
Software:	Git, SAOImage DS9, Topcat, ParaView

LANGUAGES

French:	Mother tongue
English:	Fluent (TOEFL iBT 112/120)
Spanish:	intermediate

PUBLICATIONS

1 refereed, incl 1 first author

2 non-refereed (Proceedings)

1. **Ayache, E. H.**, Van Eerten, H. J., Daigne, F. (2020), [MNRAS, 495, 2979-2993](#)
Late X-ray flares from the interaction of a reverse shock with a stratified ejecta in GRB afterglows: simulations on a moving mesh.