

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

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

POSTERS

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: “Badly Behaved Gamma-Ray Bursts” 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

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.