

James Alvey

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🔗 james-alvey-42
📌 James Alvey

Computing Skills

Expert: Python, Mathematica
Proficient: C++, C, Matlab, \LaTeX , HTML, CSS, UNIX Bash
Intermediate: Julia, Docker
Basic: R, Javascript, SQL

Publications

- [1] Improved BBN Constraints on the Variation of the Gravitational Constant. *J. Alvey, N. Sabti, M. Escudero, M. Fairbairn* (Oct 19)
- [2] Refined Bounds on MeV-scale Thermal Dark Sectors from BBN and the CMB. *N. Sabti, J. Alvey, M. Escudero, M. Fairbairn, D. Blas* (Oct 19)
- [3] Light Dark Matter from Inelastic Cosmic Ray Collisions. *J. Alvey, M. Campos, M. Fairbairn, T. You* (May 19)
- [4] Linking Scalar Dark Matter and Neutrino Masses with IceCube 170922A. *J. Alvey, M. Fairbairn* (Feb 19)

Presentations

- ›Big Bang Nucleosynthesis with Light Thermal Dark Sectors, *Uni. of Manchester*, Dark Matter UK (Oct 19)
- ›Python for Efficient Research, *King's College London*, Github Sponsored Hack Day (Oct 19)
- ›The Atmosphere as a Proton Beam Dump, *Uni. of Glasgow*, BUSSTEPP (Jul 19)
- ›Neutrinos at IceCube, *King's College London*, Dark Matter Horizons (Dec 18)
- ›Primordial Non-Gaussianity, *Uni. of Cambridge*, Seminar Series (Dec 17)

Interests

- 🚴 Triathlon, Running, Hiking
- 📢 Science Communication
- 🎸 Jazz Guitar

Profile

I am a PhD student at King's College London studying Theoretical Physics. In terms of my approach, I believe I have strong analytical and technical skills, coupled with the ability to present my findings clearly. I have experience across multiple sectors within research, data science, consultancy, and teaching. A portfolio of my work is available on my website.

Education

PhD

Oct 2018 —

Advisor: Prof. M. Fairbairn

Teaching:

1st Year Astrophysics

1st Year Labs

2nd Year Stellar Structure

4th Year Dark Matter

MMath, BA Hons.

Oct 2014 — Jul 2018

Distinction (89%)

St John's College

KING'S COLLEGE LONDON

Research into phenomenological aspects of Dark Matter. Author of four articles on topics including Big Bang Nucleosynthesis, Direct Detection, Neutrino Astrophysics, and Cosmic Rays. Current work is investigating the application of graph neural networks to the Cosmic Microwave Background. Helped to organise a Github sponsored hack day for fellow PhD students.

UNIVERSITY OF CAMBRIDGE

Finished in the top 15 of students in Part III of the Maths Tripos. Awarded the Horne Scholarship (St John's College) and Part IA Cavendish Laboratory Practical Prize.

Relevant Experience

Quantitative Analyst

ECTP

Jul 2018 — Oct 2018

Developed a machine learning training, testing, and development library for the UK desk (written in Python). Built and distributed a research analytics dashboard using Flask and Docker.

Statistics Consultant

SHIFT LEARNING

Jul 2019 — Sep 2019

Analysed and produced a report on the impact of e-Learning with regards to university student performance.

Student Researcher

DAMTP, UNIVERSITY OF CAMBRIDGE

Aug 2017 — Sep 2017

Produced Fisher error forecasts for feature-type non-Gaussianity in the Cosmic Microwave Background. Code written in C with MPI support.

Other Professional Experience

Science Editor

VARSITY MAGAZINE

Jan 2017 — Apr 2017

Edited, commissioned, wrote, and conducted interviews for over 40 science based articles across 9 weekly issues on topics ranging from education to artificial intelligence.

Risk Intern

DEUTSCHEBANK AG

Jul 2016 — Sep 2016

Report and presentation on the effect of central bank interest rate policy on global markets.

Intern

L & Q HOUSING ASSOCIATION

Jul 2015 — Sep 2015