

Final year Aerospace Engineering PhD student at the University of Bristol - with an MSci in Physics with Industrial Experience - developing a microscintillator radioactivity detector for atmospheric ionisation measurements. Keen to continue developing instrumentation, participate in scientific research, and gain international experience.

Experience

Aerospace Engineering PhD

University of Bristol, UK

Mar 2021 – Sep 2024

Development, characterisation, and deployment of a small form factor balloon-borne radioactivity detector.

- Modified electronics of the detector for low temperature environment and tested in thermal chamber
- Improved **PicBasicPro** firmware for interfacing and optimising microchip devices (**PIC16F** & **PIC12F**)
- Characterised detector performance (**count rate**, **energy spectra**) in laboratory environment
- Analysed small to large (6-month) datasets using **Python** to establish trends between instrumentation and natural phenomena
- Developed autonomous logging and upload of detector data to GitHub repository using Raspberry Pi
- Collaborated with industry partner **A-Squared Technologies Ltd.** with intent to bring detector to market

Science Journalism Internship

European Southern Observatory, Germany

Sep 2020 – Feb 2021

- Assessed new astrophysical publications for scientific value, relevance, and public appeal
- Distilled and communicated novel research to a range of audiences through a variety of media including press releases, scripted videos, and blog posts
- Worked collaboratively with colleagues in Germany and Chile to deliver content in a timely manner

Be More Empowered for Success Advocate

Bristol Doctoral College, UK

Sep 2022 – Present

- Helped shape a programme to improve the postgraduate experience of Black, Asian, and Minority Ethnic researchers at the University of Bristol
- Demonstrated leadership by organising and hosting events
- With a small team, generated positive impact within the University's postgraduate researcher community

Widening Participation Tutor

University of Bristol, UK

Oct 2022 – Present

- Worked with groups of students from backgrounds which are under-represented at university
- Created a signal processing workshop for students aged 16-18, bringing together circuit building and Python using Raspberry Pi Picos
- Delivered presentations to a range of young people about science and engineering

Education

Physics with Industrial Experience (MSci)

University of Bristol, UK

Sep 2016 – Aug 2020

Achieved a 2:1 classification with a year's industrial experience as a Science Communicator.

- Undertook a final year research project on SoLiδ anti-neutrino detector R&D
- Investigated the validity of a SoLiδ redesign: wavelength shifting strips vs. wavelength shifting fibres
- Project included operating photo-multiplier tubes, safe handling of chemicals, using picoscopes
- Degree units included: Solid State Physics, Nuclear Reactor Physics, Quantum Physics, and Particle Physics

Science Communication Placement

ISIS Neutron and Muon Source, Central Laser Facility, STFC, UK

July 2018 – Jul 2019

- Communicated unfamiliar multi-disciplinary research, primarily through article writing
- Developed professional skills including interpersonal relations, public speaking, and time management due to working between two large research facilities
- Fostered creativity by applying practical Physics skills to unrelated problems: writing a Python script to generate annual report publication lists

Presentations & Publications

- [Paper] *Modelling the response of a CsI(Tl)-PiN photodiode Microscintillator detector*, J. Tabbett, K. L. Aplin, NIM-A, 2024, [doi:10.1016/j.nima.2024.169105](https://doi.org/10.1016/j.nima.2024.169105)
- [Oral] *Development of a balloon-borne radioactivity detector for space weather measurements*, J. Tabbett, K. L. Aplin, UK Space Weather & Space Environment Meeting 1, 2023
- [Poster] *Witnessing a Forbush Decrease with a Microscintillator Ionisation Detector over the Atlantic Ocean*, J. Tabbett, K. L. Aplin, S. Barbosa, EGU 2023
- [ESO Article] *Up close and personal with the Miniscule Extremely Large Telescope*, J. Tabbett, ESO, 2021
- [ISIS Article] *Neutrons and muons: history, mystery and science meet*, J. Tabbett, ISIS STFC, 2018

Key Skills

Python	Creativity
LaTeX	Self-motivation
Oscilloscope Proficiency	Critical-thinking
PicBasic Pro	Public Speaking

Interests & Hobbies

- Poetry & Creative Writing - Member of the winning team of UniSlam 2020, a national poetry competition with some 25 competing universities
- Photography & Graphic design - Curated and designed materials for a collaborative arts exhibition with art collective [Umbra Creatives](#)

References available on request.