

Education

Ph.D. in Radio Astronomy

University of Manchester, United Kingdom, 2013-2017

My Ph.D. thesis title is "Radio Observations and Modelling of Classical Novae". My project has involved reducing and imaging eMERLIN radio interferometry observations of classical nova explosions, as well as simulating and analyzing models of nova ejecta.

M.Sc. in Radio Astronomy

University College Cork, Ireland, 2012-2013

The title of my M.Sc. thesis was "Multi-epoch 18 - 22 cm VLBA Observations of Several L Lac Objects". During my M.Sc. I reduced, imaged and analysed VLBA observations of BL Lac objects, with a focus on the magnetic field structures in their jets.

B.Sc. in Astrophysics

University College Cork, Ireland, 2008-2012

My final year B.Sc. dissertation was entitled "Multi-epoch studies of Active Galactic Nuclei". I obtained a first-class honours degree.

Skills

Programming Languages

- Highly proficient at coding in Python and Fortran
- At ease with data manipulation and visualisation using Excel and Gnuplot
- Basic working knowledge of SQL, R and MATLAB
- Capable self-learner who enjoys learning new programming languages

Data Analysis, Statistics, and Modelling

- Developed 3-D models of an astronomical thermonuclear explosion
- Evolved models over a wide parameter space to generate an extensive dataset
- Performed statistical analysis on the resulting dataset and extracted information about its behaviour
- Compared simulated data with observations of real objects to form conclusions about the behaviour of thermonuclear explosions in space

Pipeline Development

I developed specialised pipelines tailored to the needs of my research, in order to manage tasks such as:

- moving files between different directories
- converting images from one file type to another
- converting datasets between different units and scales
- extracting different types of information from the simulated datasets
- automatically generating and storing plots of that information

Media and Outreach

Panelist at Wellbeing Workshop

STFC Introductory Summer School in Astronomy, Jodrell Bank Observatory, 2017

As a panelist at the STFC Summer School Wellbeing Workshop, I and my co-panelists discussed strategies for maintaining a healthy and balanced life while doing a Ph.D.

Chair of Graduate Student Discussion Panel

Blue Dot Festival, Jodrell Bank Observatory, 2017

At the 2017 Blue Dot festival I chaired a panel that featured JBCA postgraduate students presenting and discussing their work, during which I introduced the panelists and facilitated a Q&A session with the audience.

Experience

Regular Contributor

BBC Radio 5 Live Up All Night, January 2017-Present

I appear every three weeks in a ten-minute interview slot on BBC Radio 5 Live's Up All Night show, where I discuss astronomy news and stargazing with presenter Rhod Sharpe.

Podcast Presenter on The Jodcast

Jodrell Bank Centre for Astrophysics, University of Manchester, 2014-Present

The Jodcast is an astronomy podcast run by postgraduate and postdoctoral researchers at JBCA. As a member of the Jodcast team I present episodes, interview visitors to the department, provide coverage of University-hosted events, assist with the production of episodes, and co-ordinate social events.

Chair and Facilitator of UK and Ireland Nova Meeting

Jodrell Bank Centre for Astrophysics, University of Manchester, 2016

As chair and facilitator of the September 2016 UK and Ireland Nova Meeting I was responsible for the entire running of the event. This involved liaising with the participants to schedule the meeting, compiling and distributing a meeting agenda, facilitating the participants in their presentations, and hosting a lively and productive discussion of current UK nova research.

Laboratory Tutor

University of Manchester, United Kingdom, 2013-2015

University College Cork, Ireland, 2011-13

As a laboratory tutor I helped students to set up and use laboratory equipment, providing assistance to them during the laboratory session, and marking their laboratory reports.

Administrator and Workshop Facilitator

Blackrock Castle Observatory, Cork, Ireland, 2012-2013

At Blackrock Castle Observatory I worked at the visitor centre front desk at weekends. This involved overseeing the running of the science museum, running workshops for primary-school aged children, and giving tours of the castle.

Physics Teacher

Deane College, Cork, Ireland, 2012-2013

At Deane College I taught Leaving Certificate physics, providing intensive, exam-focused tuition to help my class prepare for the Leaving Certificate exam.

Interests

Classical Music

I play piano to Grade 6 level and hold a Royal Irish Academy of Music Gold Medal in classical singing. I regularly attend concerts at Manchester's Bridgewater Hall.

Film and Television

From 2015 to 2017 I hosted the Jodrell Bank Centre for Astrophysics Film Club (JBCinema), a monthly themed film night held at JBCA.

Volunteering

I volunteered at the RSPCA Didsbury Charity Shop on Saturdays from 2014 to 2017, where I worked on the till and designed window displays.