

# Armagh Observatory and Planetarium

## Candidate Information Booklet

### Postdoctoral Research Fellow(s)



**Bronze**  
Diversity Mark

**IOP** | Institute of Physics  
**Juno Practitioner**

## 1. BACKGROUND OVERVIEW

The Armagh Observatory and Planetarium (AOP) invites applications for a Postdoctoral Research Fellow position funded by a 5 year funded European Research Council (ERC) Advanced Grant ION-FLUX, led by Prof. Jorick S. Vink.

ION-FLUX aims to establish a new predictive framework for the atmospheres, winds, and ionising output of (very) massive stars, combining hydrodynamically consistent modelling with stellar evolution. A central goal is to connect stellar winds to the build-up of the circumstellar medium, and to determine the environments in which massive stars end their lives, either collapsing to black holes or exploding as supernovae.

By linking stellar atmospheres, mass loss, and circumstellar structure, the project will provide new insights into stellar feedback, transient phenomena, and the role of massive stars in shaping galaxies and the early Universe.

The successful candidate will play a leading role in developing next-generation hydrodynamical stellar atmosphere models and exploring their implications for stellar evolution and feedback. This work will connect directly to observational programmes, including large surveys of massive stars at low metallicity.

Armagh Observatory was established in 1790 by Archbishop Richard Robinson as part of his dream to see a university in the City of Armagh. It is the oldest scientific institution in Northern Ireland and the longest continuously operating astronomical research institute in the United Kingdom and Ireland. The Armagh Planetarium was founded in 1968 by Dr Eric Lindsay, the seventh Director of the Armagh Observatory. It is the oldest operating Planetarium in the UK and Ireland and has been the public face of astronomy for the past 50 years. The Observatory and Planetarium are located within approximately 21 acres of attractive, landscaped grounds, known as the Armagh Astropark, in close proximity to Armagh City. Together, the Armagh Observatory and Planetarium (AOP) deliver internationally recognised research in astronomy and related sciences and vibrant educational and outreach programmes for all ages.

AOP is embarking on a redevelopment project to rejuvenate the organisation to secure its future for the 21st century, investing in its world-renowned research, education and outreach capabilities as a centre for the public communication of science, creating a dynamic and inspiring visitor experience, and preserving & conserving its outstanding scientific heritage and collections for future generations to see and enjoy. This project has recently been funded for the design stage.

AOP holds Juno Practitioner status and the Diversity Mark NI Bronze award and we actively support equality, diversity and inclusion and encourage applications from all sections of society. Applications from under-represented groups are particularly welcome. AOP has a responsibility to ensure that all employees are eligible to live and work in the UK.

### Research and Observation

The principal function of AOP research staff is to undertake original research of a world-class academic standard that broadens and expands our understanding of astronomy and related sciences. Important secondary functions include the organisation's responsibilities to

promote, preserve and widen access to the heritage of astronomy at Armagh; maintain the continuity and precision of the unique 220-year meteorological record at Armagh and pursue a vibrant programme of Science in the Community in support of the Northern Ireland Executive's Science, Technology, Engineering and Mathematics (STEM) Strategy and the strategic goals of the Department for Communities (DfC).

Front-line astronomical research is carried out in several key areas of astrophysics, including: Massive Stars, Solar Physics, the Solar System, Stellar Evolution, the Galaxy, and external galaxies. Staff regularly obtain telescope time on national and international facilities such as the ESO Very Large Telescope, the Southern African Large Telescope and various spacecraft missions (such as SoHO, IRIS, SDO, Hinode, Stereo, Swift, XMM-Newton, and the Hubble Space Telescope). AOP participates in several international projects including WEAVE, ULLYSES, XShootU, IPHAS, VPHAS, Gaia-ESO, LSST, GOTO, SALT, I-LOFAR and CTA.

### Heritage

AOP has an important responsibility to maintain and preserve the fabric of the historic buildings, the continuity and precision of the meteorological archive, the library, historic books and other archives, and the collection of scientific instruments and artefacts built up over more than 225 years of continuous astronomical activity in Armagh. The main historic buildings of the Observatory have unique architectural features and house one of the most valuable collections of scientific books, instruments and archives in Northern Ireland. The organisation's heritage policy is to progressively restore the historic buildings, scientific instruments, and historic books and other archives in its possession, placing the restored material where possible on display or close to its original location in its Georgian Grade A-listed Observatory building.

### Education and Outreach

In addition to research activities and in line with ministerial priorities, AOP staff and students participate in a vibrant and wide-ranging programme of Science in the Community through lectures, popular astronomy articles, supervision of schoolwork-experience students and undergraduates, and interviews with the press, radio and television. The AOP Demesne, Grounds and Astropark, have also been developed to include scale models of the Solar System and the Universe, two sundials, two historic telescopes, as well as telescope domes and a Human Orrery.

The principal function of the Planetarium is to promote public understanding of astronomy and science through its on-site educational programme of digital theatre shows, exhibits and interactive activities for schools and the wider public. The Planetarium's educational programme has been developed to complement the core curriculum and to support the Northern Ireland Executive's Science, Technology, Engineering and Mathematics (STEM) Strategy.

### **Further information**

Further information on the Armagh Observatory and Planetarium can be found on our website, [www.armagh.space](http://www.armagh.space).

## 2. JOB DESCRIPTION

<b>Job Title:</b>	Postdoctoral Research Fellow
<b>Salary:</b>	Salary scale start point will be based on the Northern Ireland Civil Service SO and DP scales (NICS Pay Scale) dependent on qualifications and experience.
<b>Duration:</b>	This is a 3-year position (with a potential extension within the confines of the ERC grant).
<b>Location</b>	Armagh Observatory and Planetarium, which is located at College Hill, Armagh, Northern Ireland, BT61 9DB.
<b>Reports to:</b>	AOP Professor Jorick S Vink.
<b>Hours of Work:</b>	This is a full-time post. Flexible working arrangements are available. AOP's hybrid working policy applies, which has a minimum of 3 days/week in the office.
<b>Starting Date:</b>	The post will start 1st November 2026 or as soon as possible thereafter.
<b>Holidays:</b>	30 days plus 12 public and privilege holidays. The holiday year runs from 1 <sup>st</sup> February to 31 <sup>st</sup> January.
<b>Pensions</b>	The Post Holder will be auto enrolled (unless they specifically opt out) in the Northern Ireland Local Government Officers' Superannuation Scheme. Full details available at <a href="http://www.nilgosc.org.uk">www.nilgosc.org.uk</a> .
<b>Referees:</b>	It is the responsibility of the applicant to arrange for letters of reference to be submitted by three individuals (referees) familiar with their scientific abilities directly to <a href="mailto:HR@armagh.ac.uk">HR@armagh.ac.uk</a> . These letters <b>MUST</b> be received by the application deadline <b>5pm on Friday 28<sup>th</sup> August 2026</b> .
<b>Probation:</b>	Confirmation of your appointment will be dependent upon the satisfactory completion of a probationary period of 12 months. If your performance, conduct or attendance during this period is not satisfactory your appointment may be terminated. All appointees will be expected to demonstrate a track record of effective service within this period.
<b>Further Information:</b>	Applicants wishing to learn more about the post before deciding may contact Lisa O'Neill ( <a href="mailto:lisa.oneill@armagh.ac.uk">lisa.oneill@armagh.ac.uk</a> ).

### **3. KEY TASKS AND RESPONSIBILITIES**

#### **Overview of the Post**

The Postdoctoral Research Fellow will be responsible for pursuing theoretical research on hydrodynamical models for the atmospheres and winds from (very) massive stars. The objective is to build new hydrodynamically consistent stellar atmospheres of VMS, and to assess its effect on evolution and feedback into the interstellar medium (ISM).

#### **Research**

- Carry out research on the winds and atmospheres of massive stars, using hydrodynamics and/or radiative transfer.
- Write up research results as papers for publication in major refereed journals.
- Attend and present relevant research at appropriate workshops and conferences (as the budget allows).

#### **Miscellaneous Duties**

- Play a full part in the academic life of AOP, including participation in discussion meetings and seminars.
- Carry out other duties not specified but within the general scope of the post and capabilities of the post holder, as determined by the Line Manager.

**This list is not meant to be exhaustive but to give a broad indication of the main duties relating to this post.**

#### 4. ELIGIBILITY CRITERIA

Applicants must provide evidence that, by the closing date for receipt of applications, they meet the following criteria, which will be used for shortlisting purposes:

<b>Education/Qualifications</b>	
<b><i>Essential</i></b>	<b><i>Desirable</i></b>
<ul style="list-style-type: none"> <li>• A PhD or equivalent degree in stellar astronomy or astrophysics.</li> </ul>	<ul style="list-style-type: none"> <li>• A good (2.1 or better) first degree in physical and/or mathematical sciences.</li> <li>• A thesis in theory of stellar wind winds or atmospheres of massive stars.</li> </ul>
<b>Experience</b>	
<b><i>Essential</i></b>	<b><i>Desirable</i></b>
<ul style="list-style-type: none"> <li>• A minimum of one 1<sup>st</sup> author paper in refereed journals such as MNRAS, A&amp;A, ApJ, etc.</li> <li>• At least 1 year experience in modelling of at least one of: hydrodynamics and/or radiative transfer.</li> </ul>	<ul style="list-style-type: none"> <li>• At least 3 years' experience in hydrodynamic or radiation hydrodynamics of a major stellar atmosphere code (e.g. CMFGEN, PoWR, FastWind , ...)</li> <li>• At least 3 years' experience developing new code for astrophysical modelling.</li> </ul>
<b>Skills, Abilities and Knowledge</b>	
<b><i>Essential</i></b>	<b><i>Desirable</i></b>
<ul style="list-style-type: none"> <li>• Excellent understanding of stellar physics</li> <li>• Fluency in a programming language, such as FORTRAN.</li> <li>• Competence in scripting, graphical and text-processing languages (e.g. bash, LaTeX, IDL, ...)</li> <li>• Good written and oral communication skills.</li> <li>• Self-motivation and ability to work without supervision.</li> </ul>	<ul style="list-style-type: none"> <li>• Evidence of innovation, ambition and leadership in hot massive star research.</li> <li>• Fluency in Python</li> </ul>

In addition to the above qualifications and experience, AOP reserves the right to shortlist only those candidates who satisfy one or more of the desirable criteria. Furthermore, particular attention would be given to the candidate research plan and how this would fit within the scope of AOP research on massive stars and complement other research activities at AOP.

## 5. ADDITIONAL INFORMATION

### Application Information:

Applicants should submit the following documents (as a single pdf) to [hr@armagh.ac.uk](mailto:hr@armagh.ac.uk) by **5pm on Friday 28<sup>th</sup> August 2026**:

- Letter of Motivation (maximum one page)
- Curriculum Vitae (with a list of publications and presentations)
- Statement of Research Interests (maximum two pages)
- 2 letters of support/recommendation
- Equality Monitoring Form

Letters of support (personal reference), of a maximum of two sides of A4. It is the responsibility of the applicant to arrange for the letters of support to be submitted by two individuals (referees) familiar with their scientific abilities directly to [hr@armagh.ac.uk](mailto:hr@armagh.ac.uk).

**These letters MUST be received by the application deadline Friday 28<sup>th</sup> August 2026.**

It is the candidate's responsibility to ensure that their application is submitted and received by this closing date and time. No late applications will be considered. No applications or supporting information in respect of an already submitted application, will be considered after the closing date and time.

### Selection Process

Applications will first be considered against the essential criteria. Where necessary, enhanced criteria may be applied. Only shortlisted candidates will be invited to interview.

### Interviews

Interviews may be held by Zoom or similar video conference facilities.

### Additional Appointments

A reserve list may be developed from this competition for similar and/or additional appointments (including postdoctoral positions) which may be made over the subsequent three years, subject to funding availability.

### Pre-Employment Checks

All offers of employment will be conditional, with the offer being subject to the candidate's relevant pre-employment checks being returned satisfactorily:

- Proof of identity and entitlement to work in Northern Ireland;
- Proof of relevant PhD qualification\*;
- Three references.

**\* By the date the post is taken up, either a PhD certificate, or an assurance by the PhD awarding University that the paperwork is just a formality, i.e. that all exams have been completed.**

## **6. OTHER CONDITIONS AND FEATURES**

Please ensure that AOP are informed immediately of any changes in personal circumstances.

### **6.1 DISABILITY**

If you require any reasonable adjustments, due to disability, to enable you to attend any part of the assessment process, please contact Lisa O'Neill ([lisa.oneill@armagh.ac.uk](mailto:lisa.oneill@armagh.ac.uk)). If you have indicated that you have a disability and are successful in the selection process and are being considered for appointment, you may be required to outline any adjustments you consider necessary in order for you to take up an appointment.

### **6.2 EQUAL OPPORTUNITIES MONITORING FORM**

Under Section 75 of the Northern Ireland Act 1998 public bodies are required to report on equal opportunity monitoring.

It is the policy of Armagh Observatory and Planetarium to ensure that all eligible persons have equal opportunities for employment and advancement in the Armagh Observatory and Planetarium on the basis of their ability, qualifications and aptitude. AOP select those suitable for appointment solely on the basis of merit without regard to an individual's religious belief, political opinion, trade union membership, gender, marital status, sexual orientation, age, disability, race, colour or ethnic origin.

In order to ensure that the equal opportunity policy is effectively implemented, the equal opportunity information provided on application forms will be monitored.

### **6.3 NATIONALITY REQUIREMENTS**

There are no nationality restrictions on this post, however, before an offer of appointment can be made to an overseas candidate, AOP will need to ensure that all UK visa and immigration requirements are met.