ARMAGH OBSERVATORY & PLANETARIUM
EXPLORING THE COSMOS SINCE 1790

Armagh Observatory and Planetarium

Öpik Fellowship

Candidate Information Book

IOP | Institute of Physics
Juno Practitioner

FOREWORD

Thank you for your interest in the Öpik Fellowship at Armagh Observatory and Planetarium (AOP).

AOP is seeking to appoint an individual on an upward career trajectory and with an outstanding research record, who is looking to establish a unique research area that would contribute to, or complement, the ongoing research at AOP.

This is a unique opportunity to carry out independent research in one of the longest continuously operating astronomical research institutes in the world (a recognised leader in several specialist fields) and one of the world's most advanced planetaria. Armagh Observatory and Planetarium delivers internationally-recognised research in astronomy and related sciences and vibrant educational and outreach programmes for all ages. Its research staff work on a range of topics, from the study of our Sun and Solar System, through the life and evolution of stars, to distant galaxies, in keeping in the varied nature of the research legacy of Ernst Öpik during his career in Armagh.

The successful candidate will be expected to carry out original and significant research at international research quality standards in any field related to astrophysics, including theory, observations, simulations and instrumentation, to regularly publish this research in major refereed journals and to present it at international workshops and meetings. The Öpik Fellow will also be expected to effectively communicate their research results to the general public and to contribute to the broader public engagement and outreach functions of AOP. Finally, the Öpik Fellow will also be welcome to contribute to the supervision and training of PhD students at AOP.

The Candidate Information pack provides information about Armagh Observatory and Planetarium, the responsibilities of the Öpik Fellow, the person specification and the selection process. Further information can also be found on our website www.armagh.space

If you would like further information before making your application, please contact HR@armagh.ac.uk, who will endeavour to answer any queries you may have.

As a Juno Practitioner, AOP embraces equality and welcomes applications from women, black and minority ethnic candidates, and members of other groups that are under-represented in physics.

PROFESSOR MICHAEL BURTON
Director & Chief Executive
Armagh Observatory and Planetarium

1. Background Information

The Armagh Observatory was established in 1790 by Archbishop Richard Robinson as part of his ambition 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 21 acres of attractive, landscaped grounds, known as the Armagh Astropark, near to the city of Armagh. 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.

In April 2016, the Armagh Observatory and the Armagh Planetarium became one organisation, registered with the Charity Commission. There is a staff complement of 34, including scientific, educational and administrative personnel. Currently there are five tenured astronomers and two PDRAs in addition to the Head of Research, the Director and twelve PhD students.

There is an active visitor's programme, and each year AOP hosts several academic visitors.

The Vision of Armagh Observatory and Planetarium is:

> *"To be recognised as an international centre of scientific excellence for the pursuit of astronomy and the public understanding of science, for our capacity for innovation and our extraordinary heritage, a place our community can be proud of."*

Research

The principal function of the Observatory 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 225-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).

AOP is engaged in front-line research in several key areas of astrophysics, ranging from the study of our Sun and Solar System, through the lives and evolution of stars, to distant galaxies (see https://www.armagh.space/research/). This is in keeping with the long and varied history of scientific achievements of the Armagh Observatory and in close alignment with the broad priorities of the strategic roadmap for European Astronomy. 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, whilst also serving on various telescope time and grant funding allocation panels. AOP is a member of several international projects such as the Gravitational-wave Optical Transient Observatory, the Low-Frequency Array (LOFAR) through the Irish station on the grounds of Birr Castle, the Cherenkov Telescope Array and the Comet-Interceptor ESA mission. Finally, AOP has also close research and academic ties with both Queen University Belfast (QUB) and with the

Dublin Institute for Advanced Studies (DIAS). Further information regarding recent and current research developments at AOP may be obtained at www.armagh.space and by contacting via e-mail the Head of Research, Prof. Marc Sarzi.

Heritage and Meteorological Observations

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 230 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. Armagh, along with Birr and Dunsink (DIAS) observatories in the Astronomical Observatories of Ireland partnership, are aspiring for UNESCO World Heritage accreditation on account of their remarkable astronomical heritage.

AOP also operates one of the oldest meteorological stations in the world, recognised as a Centennial Observing Station by the World Meteorological Organisation (WMO). With an unbroken record of observations since 1795, AOP's daily meteorological data contributes to understanding climate change. Maintaining such a unique observing record is a key priority for AOP, consistent with plans to increases AOP activities around understanding and public education of in the arena of climate change.

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 work-experience students and undergraduates, and interaction with the press, radio and television. The AOP Demesne, Grounds and Astropark also include scale models of the Solar System and the Universe, two sundials, as well as several domes containing heritage telescopes 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, in particular, to support the Northern Ireland Executive's Science, Technology, Engineering and Mathematics (STEM) Strategy.

Strategic Direction

The establishment of the Öpik Fellowship is in keeping with the AOP research strategy and its ambition to be a world-leading and wide-ranging centre for Astrophysics research, spearheading national, cross-border and world-wide collaborations capable of attracting unique talent and novel techniques to Northern Ireland. As such, the successful candidate will be expected to carry out research at AOP's world-leading or internationally-excellent research standards, while enhancing the visibility of AOP research both to the research community and the general public, and finally helping with the long-term sustainability of AOP

research activity. More information on the strategic directions of AOP can be found in the corporate plan on our webpages and by e-mail enquiry.

Further Information

More information on the Armagh Observatory and Planetarium can be found on our website: www.armagh.space. The annual reports (under Corporate heading) contain full details of research activities.

2. JOB DESCRIPTION

The Öpik Fellowship is a 3-year Fixed-Term Appointment.

Location
The Post Holder will be based at the Armagh Observatory and Planetarium, which is located at College Hill, Armagh, Northern Ireland, BT61 9DB.

Reporting
The Post Holder will report to the AOP Head of Research.

Salary
AOP use the Northern Ireland Civil Service (NICS) pay scales. This post will be within the DP range £42,315 - £45,351. Applicants can expect to be placed at the minimum of the scale and pay progression will be performance related.

Re-location
Where the successful candidate has to relocate home in order to take up the appointment, the reimbursement of reasonable expenses (in part or full) as a result of the relocation may be considered. For more information see AOP's Recruitment Policy.

Hours of Work
This is a full-time post. The contracted working hours are 37 hours per week Monday – Friday. No payment will be made for additional hours worked and you will be expected to attend the office during normal working hours as required by the Director and/or Head of Research.

Travel and other Support
The Post Holder will be expected, on occasion, to travel nationally and internationally on official duty to present their research results, supported by a research budget of £3,000 per year.

Holidays
The Post Holder will have an annual leave allowance of 30 days, plus 12 public and privilege holidays. The holiday year runs from 1st February to 31 January.

Pensions
The Post Holder is entitled to join the Northern Ireland Local Government Officers' Superannuation Scheme and will be auto enrolled unless they specifically opt out. Full details available at www.nilgosc.org.uk.

Vetting Requirements
The level of vetting required for this post is a Basic Check.

Referees
Applicants should provide in the application form the names, titles and contact details of three referees who should submit confidential reports direct to **hr@armagh.ac.uk** by the application deadline. These letters MUST be received by the application deadline **Friday 17th January 2025.**

Probation

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.

Further Information

Applicants wishing to learn more about the post before deciding may contact hr@armagh.ac.uk.

3. KEY RESPONSIBILITIES

The main duties and responsibilities of the Öpik Fellow include:

Research

- Applying knowledge and understanding of methodologies for undertaking quantitative and pioneering scientific research, publish such results in international refereed journals and present these findings at international meetings at a level that can command respect within academic communities worldwide.

General/Miscellaneous Duties

- Represent and champion AOP's profile and research accomplishments and work to maximise performance in any assessment of AOP's research excellence.

- Promote STEM education and take part in outreach opportunities arising from the research being undertaken in AOP, including but not only research produced by the Öpik Fellow.

- Play a full part in the academic life of the Observatory and Planetarium, including participation in discussion meetings and seminars.

- Engage with the supervision of PhD students.

- Lead research funding grant applications.

- Act as required as a spokesperson on technical (or other) issues for the organisation to the media, etc.

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 have by the closing date for applications:

1) A PhD in Physics, Astrophysics or Astronomy (or related subject)

Applications will also be considered from applicants with relevant formal qualifications considered by the selection panel to be of an equivalent or higher standard to those stated.

Relevant or **equivalent** qualifications: give the type of qualification and date awarded (the date awarded is the date on which you were notified of your result by the official awarding body). If you believe your qualification is equivalent to the one required, the onus is on you to provide the panel with details of modules studied, etc so that a well-informed decision can be made.

5. SHORTLISTING CRITERIA

In addition, applicants should be aware that after an eligibility sift, the following shortlisting criteria will be applied to shortlist candidates to go forward to the next stage of selection:

1. Excellence of publication record in peer-review, high quality, international scientific journals. This will be evidenced through the submitted CV & Publication List.

2. Quality, timeliness, feasibility and novelty of the submitted Research Proposal.

3. International standing and Leadership potential of the individual in their field. This will be evidenced through the submitted CV and Research Proposal.

4. Alignment with AOP research and vision, by adding to or complementing ongoing projects at AOP. This will be evidenced by the submitted CV and the Research Proposal.

5. Ability to communicate their science and STEM-related subjects effectively to a broad range of audiences with varying levels of scientific knowledge. This will be evidenced by the submitted CV, the Lay Summary and the Collaboration & Public Engagement sections of the application.

6. Potential to expand academic and research partnerships with QUB and DIAS. This will be evidenced in the Research Proposal and the Collaboration & Public Engagement sections of the application.

The Öpik Fellowship Competency Framework (Section 8) gives an additional indication of the applicant's expected level of experience and abilities. Reference letters may also be used to assist with the shortlisting process.

6. PERSON SPECIFICATION

Candidates will be expected to demonstrate the skills and competencies set out in the eligibility criteria and shortlisting criteria. For filling the Öpik Fellowship position, AOP is adopting a similar competency framework (Section 8) as used by the Science & Technology Facilities Council (STFC) for the appointment of their Ernest Rutherford Fellowship (ERF).

7. INTERVIEW CRITERIA

Applicants will be expected to display the following qualities and skills at interview (these are detailed in Section 8 below):

1. Research Vision

Marks available: 20
Minimum standard: 12

2. Research Experience & Potential

Marks available: 20
Minimum standard: 12

3. Leadership

Marks available: 20

Minimum standard: 8

4. Communicating & Engagement Skills
Marks available: 20
Minimum standard: 8

5. Profile and Influence
Marks available: 20
Minimum standard: 8

Total Marks Available: 100
Overall Pass Mark: 48

The Selection panel will design questions to test the applicant's knowledge and experience in each of the above areas and award marks accordingly.

As part of the selection process candidates will be required to make a presentation relevant to their Research Proposal and the responsibilities of the post lasting no longer than 10 minutes.

Candidates should fully prepare their presentation in advance of the interview as no preparation time will be provided on the day of interview. Further details regarding the presentation will be provided to candidates in the invitation to interview letter.

8. ÖPIK FELLOWSHIP COMPETENCY FRAMEWORK

The following table provides further information of the skills, knowledge and experience that candidates might demonstrate to support their application for the Öpik Fellowship. The competencies will be tested at interview and the examples are provided as a guide to candidates as to the type of experience the panel will expect them to demonstrate.

Competence	Effective Examples
1. Research Vision	a) have a clear strategic vision for their own research within the context of the broad research area within which they work; b) have their own research plans/ideas which are independent of their current group, mentors or proposed sponsors and which will enable them to become an independent research leader; c) be able to describe how their research plans fit into an international context; d) have clear plans to establish their own research profile that will enable them to become an independent research leader, including through the pursuit of research funding; e) have a personal network of research contacts including appropriate collaborations nationally, internationally and across disciplines; f) Have given consideration to how their research plans could add to AOP's partnerships with QUB and DIAS.

2. Research Experience & Potential	a) Have a track record of ambitious, innovative and productive research in their area which demonstrates an upward trajectory. For example, by producing high quality publications, recognition of their publications, high profile invitations to seminar/conferences or similar outputs; b) Demonstrate potential to lead research, for example by having collaborated with teams in other departments, research organisations or other disciplines, or by having been awarded independent funding; c) Demonstrate a track record in engagement or impact outside the academic environment where relevant e.g. through collaboration with private, public or third sector bodies, or public engagement activities.
3. Leadership	a) Show an ability to identify and maximise potential in others. For example, through the day-to-day support of Masters and PhD students or early career researchers or by actively networking or coordinating the work of others; b) Beginning to demonstrate evidence of recognition and leadership in the community on an international scale through mechanisms appropriate to their discipline.
4. Communication & Engagement Skills	a) Have effective communication and interpersonal skills across different audiences, including academic and public, for example, through social media, publications for a non-academic audience, or presentation at conferences and public engagement events; b) Show how research outcomes will be/and have been communicated and disseminated within and outside the research community.
5. Profile & Influence	a) Show an understanding of how to influence their research field and awareness of ways to influence the wider research agenda. For example, through experience of participation in peer review, invitations to give lectures/seminars, participation in internal committees, acting as an ambassador or advocate for a research field or theme, or influencing policy; b) Evidence of recognition by the host organisation, for example, in the form of specific support or a contract or dedicated leadership development plans.

It is important that all candidates familiarise themselves with the competency framework as this will form the basis of the assessment / interview criteria as outlined above.

9. TIMETABLE

Closing Date for applications: Friday 17th January 2025

Call Activity	Indicative Timetable
Shortlisting	January 2025
Interviews	February 2025
Award Announced	March 2025
Fellowship start	April 2025

10. HOW TO APPLY

Applicants should submit the following to hr@armagh.ac.uk by **Friday 17th January 2025.**

- Application Form
- Equality Monitoring Form
- Curriculum Vitae (CV) of a maximum of two sides of A4.
- Publications List by year.
- Statement of Research Interests (maximum of two pages)
- **Case for Support**, of a maximum length of three sides of A4 including references, diagrams and illustrations. This should be a clear and concise description of your research track record and the vision, aims and context of your research (maximum length of three A4 sides). The description of your track record may refer to but should not duplicate material in your CV or publication list. You should focus on your achievements that have the most relevance to your application and the assessment criteria, including your most significant results and their impact, and mention any past or present collaborations. The description of your Fellowship research should describe the context and aims, indicate the approach you intend to take and the timetable for your work, highlight what is novel and explain why it is timely. You should set your programme of research in the wider international context and explain why you are the right person to do the work.
- **Collaboration and Public Engagement**, of a maximum of two sides of A4. This should describe the potential for collaborative research and engagement with activities at AOP, and/or with our partners at QUB and DIAS. It may also include track record in public engagement and plans or opportunities for contributing to outreach to public audiences, including utilising the Armagh Planetarium for this.
- **3 Letters of support (personal reference)**, of a maximum of two sides of A4. 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 HR@armagh.ac.uk. These letters MUST be received by the application deadline 17th January 2025.

No late application forms will be considered. No applications or supporting information in respect of an already submitted application, will be considered after this date and time.

11. OTHER CONDITIONS AND FEATURES

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

11.1 Disability Requirements

If you require any reasonable adjustments, due to disability, to enable you to attend any part of the assessment process, please contact hr@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.

11.2 Equal Opportunity 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 the Governors of the 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. The Governors of the Armagh Observatory and Planetarium 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 of the Governors of the Armagh Observatory and Planetarium is effectively implemented, the equal opportunity information provided on application forms will be monitored.

11.3 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.