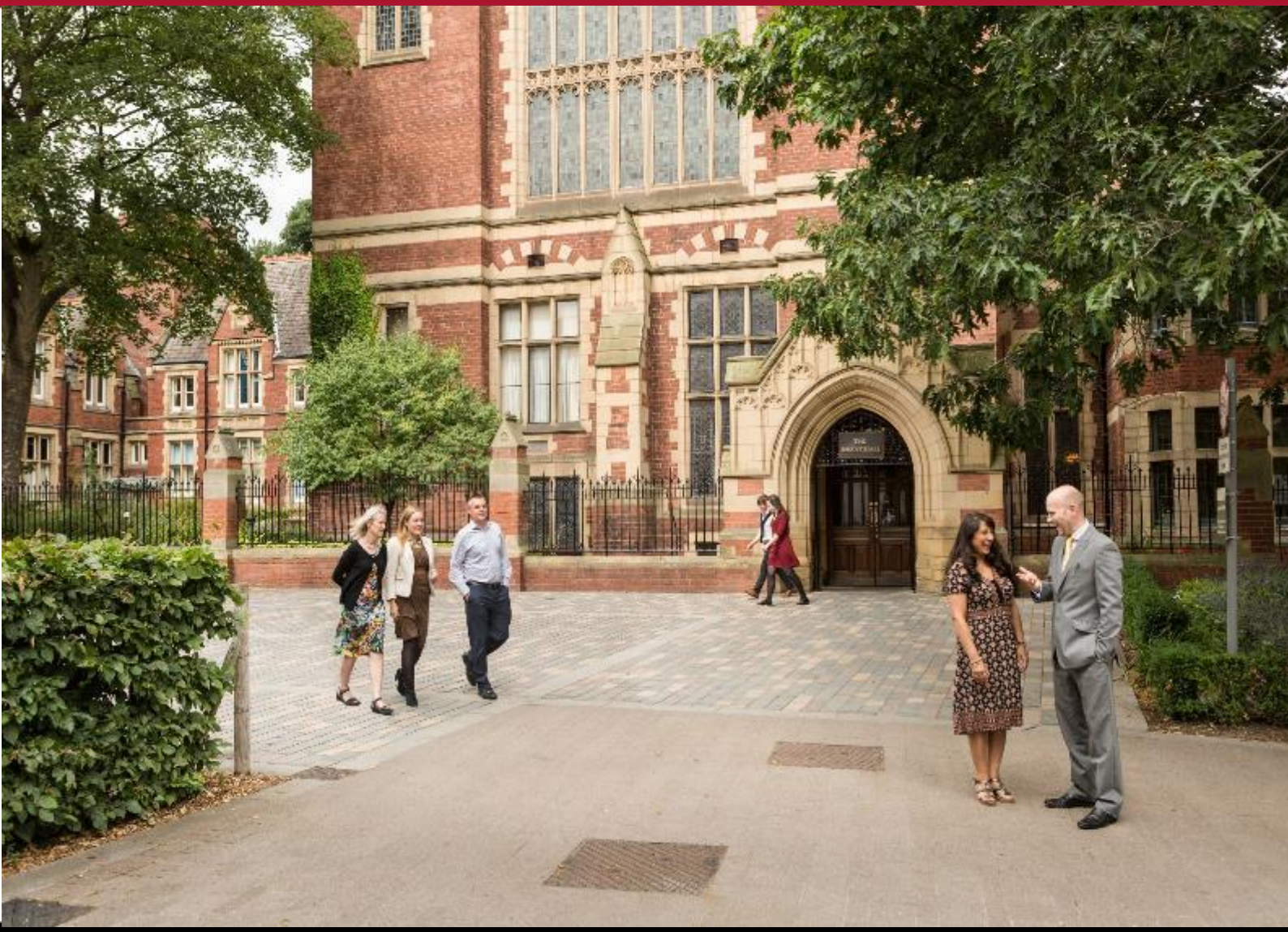
UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Marie Curie Early-Stage Researchers in Mathematical Modelling, Faculty of Engineering & Physical Sciences



Salary: In line with Marie Skłodowska-Curie Innovative Training Network requirements

Reference: EPSMA1015

Closing date: Tuesday 31 March 2020

Fixed-term for 36 months, 2 posts available

We will consider flexible working arrangements

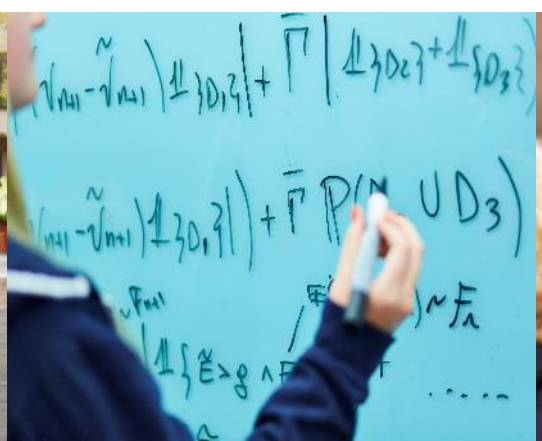
Marie Curie Early-Stage Researchers in Mathematical Modelling,
School of Mathematics.

Are you a rising star in the field of Mathematical Modelling, in the first years of your research career and based outside the UK? Would you like to carry out research and participate in the activities of the European Union (EU) funded H2020 Marie Curie European Industry Doctorate project "*Eagre/Aegir*: high-seas wave-impact modelling", involving the University of Leeds and the Maritime Research Institute Netherlands (MARIN)?

Eagre is a Marie Skłodowska-Curie project for European Industry Doctorates. Its primary objective is to train new mathematical modellers, who will be able to solve problems in maritime engineering based on advanced mathematical and numerical analysis, the efficient implementation and testing of this analysis in finite-element simulations and validation against wave-tank data. *Eagre* will train two Early Stage Researchers both at the University of Leeds (first 18 months) and at MARIN (second 18 months), bringing together proven expertise in mathematical and numerical modelling as well as maritime engineering from renowned European academic and private institutions.

You will carry out research and participate in the activities of *Eagre*, a new Marie Curie European Industry Doctorate project (EID) devoted to the science of extreme water-wave modeling and water-wave impact on (wind-turbine) structures. Two research topics are investigated. The first project "ExtremeWaves" concerns computational and mathematical modelling using advanced geometric methods with wave generation, breaking, and currents. The second project "WaveTurbineImpact" concerns the computational and mathematical modelling of water-wave impact on dynamics and flexible (wind-turbine) structures. Both projects include comparison with available (and possibly new) wave-tank data at MARIN.

The first ESR project "*ExtremeWaves*" involves performing original research, at a level suitable for a PhD, under the supervision of the project managers, consistent with the research plans of "*ExtremeWaves*". It includes becoming an expert in nonlinear wave modeling using applied mathematics, finite element methods and wave modeling. The second ESR project "*WaveTurbineImpact*" involves performing original research, at a level suitable for a PhD, under the supervision of the project managers, following the


research plans of "*WaveTurbineImpact*". It includes becoming an expert in nonlinear wave modelling and hydro-elastic theory using applied mathematics and finite element methods. Both projects will include validation against wave-tank data in a maritime research environment.

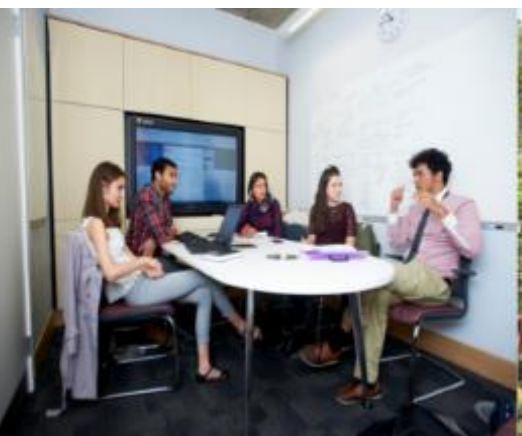
An Early-Stage Researcher (ESR) position is a Marie Curie Fellowship for postgraduate research and concerns study towards a doctoral degree (PhD). ESRs are normally based outside the country of their nationality, in this case both the UK and The Netherlands. The EID project provides an excellent opportunity for scientific and personal development, with regular training courses in scientific and general transferable skills both at the University of Leeds, in the UK, and at the Maritime Research Institute Netherlands (MARIN), in the Netherlands. There is also the chance to meet and to discuss problems with leading scientists (including several international visiting scientists) and maritime-engineering experts in the field.

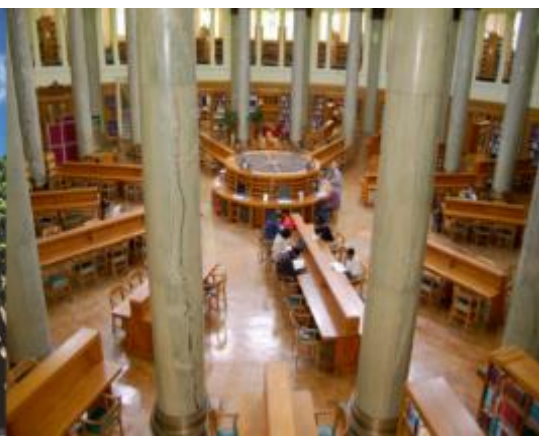
Supervisors (for both ESRs) are: Prof Onno Bokhove (School of Mathematics), Dr. Sanne van Essen, and Dr. Tim Bunnik (MARIN). The research performed will form all or part of your studies towards a postgraduate research degree (PhD) in mathematics in Leeds. You will have an undergraduate (BSc honours or MSc) degree (with a minimum 2.1 degree or above or equivalent) in a closely related discipline (physics, mathematics, engineering) with relevant theoretical and computational experience.

Important eligibility rules for this position:

There are no restrictions on applicants' nationality, but:

- Applicants must, at the time of recruitment, have not yet been awarded a doctorate degree and be in the first 4 years (full-time equivalent) of their research careers. This is measured from the date that you obtained the degree that would entitle you to embark on a PhD;
- At the time of recruitment, applicants must not have resided or carried out their main activity (work, studies, etc.) in the UK for more than 12 months in the 3 years immediately prior to their recruitment under the Eagre project. Compulsory national service and/or short stays such as holidays are not taken into account.





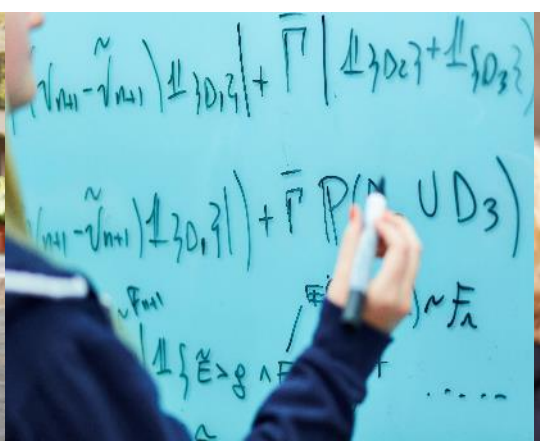
Salary:

The Marie Skłodowska Curie Research Fellowship offers a highly competitive and attractive salary and working conditions. The successful candidate will receive a salary in accordance with the Marie Skłodowska Curie regulations for early stage researchers. The exact salary will be confirmed upon offer and will be based on a living allowance of €3,741 per month and a mobility allowance of €600 per month. Additionally, you may also qualify for a family allowance of €500 per month depending on personal circumstances. The final salary will be confirmed upon offer and will be subject to tax and employer's and employee's National Insurance deductions, and will be paid in UK Sterling (£) using an appropriate conversion rate.

What does the role entail?

As an Early-Stage Researcher, your main duties will include:

- Contributing to the *Eagre/Aegir* European Industry Doctorate (EID) under the supervision of Prof Onno Bokhove (Leeds), Dr. Van Essen and Dr. Bunnik (MARIN);
- Undertaking ongoing research at doctoral degree level to develop relevant novel mathematical and numerical models;
- Participating in the *Eagre* EID activities to ensure a successful project of research and training, including attending group meetings and seminars, training courses and research visits, as well as collaborating with academic and industrial partners;
- Contributing to the dissemination and communication of research results in leading peer-reviewed journals and through presentation at meetings and conferences, with guidance as necessary;
- Ensuring excellent progress of your work and keeping up-to-date records;
- Providing support and advice to your fellow ESR within the EID;
- Working both independently and as part of a larger team of researchers from the University of Leeds and MARIN, both in academic and industrial environments;
- Continually updating your knowledge, understanding and skills in the applied mathematics and maritime-engineering research areas.
- Meeting with your supervisor(s) on a regular basis;

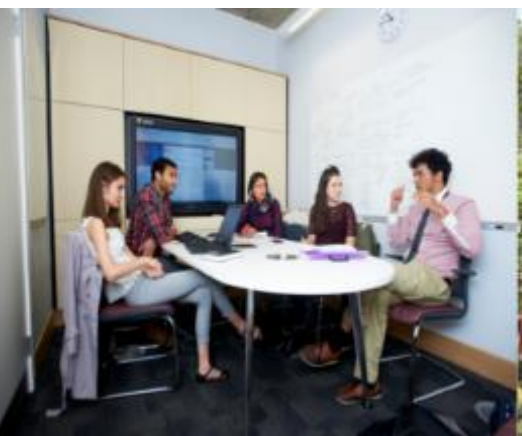

- Passing progression requirements at various points during your studies and meeting all other School, Faculty and University requirements for PhD studies;
- Participating in the activities of the *Eagre* EID project, including attending training courses, collaborating with scientists from other sites in the network, exchanging scientific data, participating in visits to other sites;
- Taking responsibility for furthering your personal knowledge of the research area in which you will work;
- Writing up the results of your own research and contributing to research reports/publications; this will often be an iterative process, incorporating advice and guidance from others as appropriate;
- Presenting findings of research e.g. preparing papers and making presentations, with guidance and advice as appropriate;
- Actively engaging as a researcher within the maritime-engineering research environment of the industrial partner MARIN;
- Keeping records of activities undertaken (including leaves of absence); and, finally;
- Acting in a professional manner throughout and within a versatile team.

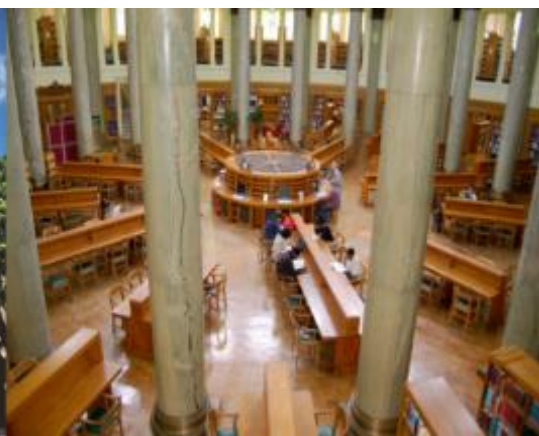
The above duties provide only a framework for the role and should not be regarded as a definitive list. Other reasonable duties may be required consistent with the grade of the post.

What will you bring to the role?

As an Early-Stage Researcher, you will have:

- An undergraduate (BSc honours or Masters) degree (with a minimum 2.1 degree or above or equivalent) in a closely related discipline (physics, mathematics, engineering) with relevant theoretical and computational experience;
- The ability to meet all eligibility requirements for appointment in the UK as an Early Stage Researcher funded by the Marie Skłodowska-Curie Innovative Training Network:
- You must be within the first four years of your research career (full-time equivalent, as measured from the date when you obtained the degree that would formally entitle you to embark on a doctorate, either in the country in which you obtained your degree or the country in which you are recruited or





seconded), and have not yet been awarded a doctoral degree (e.g. PhD), at the time of recruitment to this role;
- The intention to undertake doctoral studies in Applied Mathematics, with the ability to meet the University's eligibility requirements to enrol on a PhD degree, including English-language requirements if English is not your first language;
- The flexibility to travel throughout the European Union;
- Experience of and motivation for undertaking academic research in a maritime-engineering environment;
- Good interpersonal and communication skills, both written and verbal, and the ability to communicate effectively with a wide range of stakeholders;
- Good time-management and planning skills, with the ability to meet tight deadlines and to manage competing demands effectively;
- A proven ability to work well both independently and as part of a team;
- A strong commitment to your own continuous professional development.

You may also have:

- Evidence of contributing to papers in internationally recognised, peer-reviewed journals or evidence of publishable research in progress.

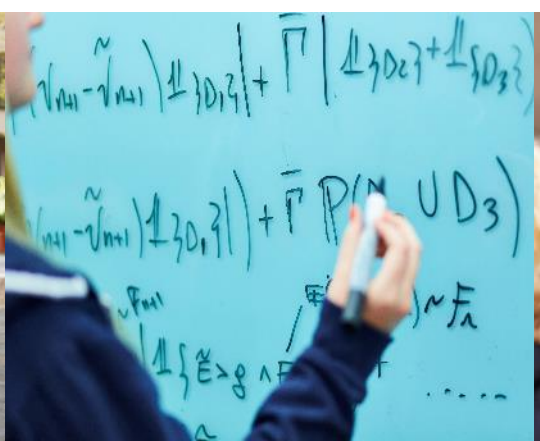
How to apply

You can apply for this role online; more guidance can be found on our How to Apply information page. Applications should be submitted by **23.59** (UK time) on the advertised closing date.

Contact information

To explore the post further or for any queries you may have, please contact:

Professor Onno Bokhove, Chair in Geophysical Fluid Dynamics
Tel: +44 (0)113 343 9751
Email: O.Bokhove@leeds.ac.uk


Additional information

More information on Marie Curie Initial Training Networks is available. Further information is available on the research and teaching activities of the Faculty of Engineering & Physical Sciences, and the School of Mathematics.

Working at Leeds
Find out more about the benefits of working at the University and what it is like to live and work in the Leeds area on our Working at Leeds information page.

A diverse workforce
The Schools in the Faculty of Engineering & Physical Sciences are proud to have been awarded the Athena SWAN Bronze or Silver Award from the Equality Challenge Unit, the national body that promotes equality in the higher-education sector. Our equality and inclusion webpage provides more information.

Candidates with disabilities
Information for candidates with disabilities, impairments or health conditions, including requests for alternative formats, can be found on our Accessibility information page or by getting in touch with us at disclosure@leeds.ac.uk.

Criminal record information

Rehabilitation of Offenders Act 1974
A criminal-record check is not required for this position. However, all applicants will be required to declare if they have any 'unspent' criminal offences, including those pending.

Any offer of appointment will be in accordance with our Criminal Records policy. You can find out more about required checks and declarations in our Criminal Records information page.