Loughborough University

Research Associate in Algebraic Geometry

REQ210310

As part of the University's ongoing commitment to redeployment, please note that this vacancy may be withdrawn at any stage of the recruitment process if a suitable redeployee is identified.

Project Description

This project is funded by an EPSRC grant entitled "Kähler-Einstein metrics on Fano manifolds". The overall aim of the project is to study k-stability of Fano varieties. K-stability, introduced by Tian and Donaldson, detects the existence of Kähler-Einstein metrics on Fano manifolds. There have been impressive developments in this area in recent years; most notably in the set-up of the K-moduli theory and in settling the correspondence between the existence of Kähler-Einstein metrics and K-stability. However, much remains to be done in verifying K-stability for given Fano manifolds. For example, all smooth Fano hypersurfaces are expected to be K-semistable and various cases have been verified. Many families remain to be checked and new techniques may be required.

The project will be carried out jointly by the RA and Dr Hamid Ahmadinezhad as the Supervisor / Principal Investigator (PI).

Job Description

Job Grade: Specialist and Supporting Academic, Grade 6.

Job Purpose
To conduct research in the area of algebraic geometry; in particular the study of k-stability on Fano varieties. To develop new techniques for the study of k-stability on various classes of Fano varieties, and ultimately study their moduli properties.

Job Duties:
- To become familiar with relevant literature on k-stability and the geometry of Fano varieties.
- To develop new techniques for checking k-stability.
- To conduct research into new directions of research on k-stability and k-moduli.
- To write research papers suitable for publication in high quality academic journals.
- To disseminate results of the project at both national and international conferences.
- To support the PI by enhancing relationships with existing collaborators and by assisting the establishment of relationships with new collaborators.
- To undertake tasks assigned by the PI.
- To participate in activities within the Loughborough Centre for Geometry and Applications, including regular research seminars.
- There will be an opportunity to do a small amount of teaching in the Department of Mathematical Sciences, if desired.

- To engage in training programmes in the University (or elsewhere) that are consistent with the needs and aspirations of the project and those of the Department.
- Undertake other duties as may be reasonably requested and that are commensurate with the nature and grade of the post.

Points to Note

The purpose of this job description is to indicate the general level of duties and responsibility of the post. The detailed duties may vary from time to time without changing the general character or level of responsibility entailed.

Special Conditions

All staff have a statutory responsibility to take reasonable care of themselves, others and the environment and to prevent harm by their acts or omissions. All staff are therefore required to adhere to the University's Health, Safety and Environmental Policy & Procedures.

All staff should hold a duty and commitment to observing the University's Equality & Diversity policy and procedures at all times. Duties must be carried out in accordance with relevant Equality & Diversity legislation and University policies/procedures.

Successful completion of probation will be dependent on attendance at the University's mandatory courses which include Respecting Diversity and, where appropriate, Recruitment and Selection.

Organisational Responsibility

Reports to the Principal Investigator, Dr Hamid Ahmadinezhad.

Person Specification

Your application will be reviewed with respect to meeting the essential and desirable criteria listed below.
Your application will be reviewed against the essential and desirable criteria listed below. Applicants are strongly advised to explicitly state and evidence how they meet each of the essential (and desirable) criteria in their application. Stages of assessment are as follows:

1 – Application
2 – Test/Assessment Centre/Presentation
3 – Interview

Essential Criteria

Area	Criteria	Stage
Experience	Background in algebraic geometry	1,2,3
	Experience of preparing and/or publishing original work as academic journal papers and/or PhD thesis, commensurate with the stage of career	1
Skills and Abilities	Research in algebraic geometry	1,2
	Excellent written and oral communication skills	1,2,3
	Self-motivated with ability to meet deadlines	3
	Excellent interpersonal, and organisational skills	1,3
	Ability to work as part of a team and collaborate with others	1,3
Training	Willingness to undertake further training as required	3
Qualifications	PhD (or near completion) in mathematics	1
Other	Commitment to observing the University's Equal Opportunities policy at all times	3

Desirable Criteria

Area	Criteria	Stage
Experience	Experience in working with specific classes of Fano varieties	1,2,3
	In-depth knowledge of birational geometry techniques	1,2,3
	Experience in conducting research on k-stability	1,2,3
	Working in a high-quality academic research environment	1,3
Skills and Abilities	A strong publication track record, commensurate with the stage of career	1
	Ability and willingness to teach at an undergraduate level	1,3

Conditions of Service

The position is full time and fixed term for 20 months. Salary will be on Specialist and Supporting Academic Grade 6, £30,942 - £36,914 per annum, subject to an annual pay award, at a starting salary to be confirmed on offer of appointment.

The appointment will be subject to the University's Terms and Conditions of Employment for Grades 6 and above details of which can be found here.

The University is committed to enabling staff to maintain a healthy work-home balance and has a number of family-friendly policies which can be found here.

The University offers a wide range of employee benefits which can be found here.

We also offer an on-campus nursery with subsidised places, subsidised places at local holiday clubs and a childcare voucher scheme (further details are available at: http://www.lboro.ac.uk/services/hr/a-z/childcare-information---page.html

In addition, the University is supportive, wherever possible, of flexible working arrangements.
We also strive to create a culture that supports equality and celebrates diversity throughout the campus. The University holds a Bronze Athena SWAN award which recognises the importance of support for women at all stages of their academic career. For further information on Athena SWAN see
http://www.lboro.ac.uk/services/hr/athena-swan/

Applications

The closing date for receipt of applications is **23 May 2021.**