

Promotion up to Senior Lecturer / Senior Research Fellow



Application case form for Promotion up to Senior Lecturer / Senior Research Fellow (to accompany CV)

The applicant details and [Section 1](#) of this form should be completed by candidates seeking promotion under the [University's Procedure for Promotion up to Senior Lecturer / Senior Research Fellow](#) using the [Academic Promotions Framework](#) and submitted together with their CV to the Head of School.

Note: Please ensure that you use the correct option for Section 1.2:

- **Section 1.2a** is for promotion to level b (Senior Research Associate or Lecturer)
- **Section 1.2b** is for promotion to level c (Lecturer or Research Fellow) or d1 (Senior Lecturer or Senior Research Fellow)

Please refer to the [CV Standards](#) for further information regarding the required length and format of CVs for this promotion process. [Section 2](#) is to be signed off by the Head of School following input from other appropriate academic colleagues, which will normally include the applicant's line manager. The Head of School then submits their recommendation to the Dean to make a final decision with the Faculty Head of HR Business Partnering in [Section 3](#). Deadlines for completing each section are included in the procedure.

APPLICANT DETAILS

Name:	Farhad Babaei
Resource ID:	?
School:	Mathematics
Faculty:	Science
Start date on current role profile level:	01/10/2018
Current job title:	Lecturer in Pure Mathematics
Current pathway:	1
Current role profile level / pay grade:	Level c / Grade K
Level of promotion sought:	Level d1 / Grade L

SECTION 1 – APPLICATION BY THE CANDIDATE

1.1 Personal statement

Please use the following space to set out your personal case in support of your application. It is intended to be a brief personal narrative summary that sets up the more detailed evidence in the following section. There is no fixed format, but it could follow these prompts (usually written in the first person):

- Introduce yourself
- Summarise what is distinctive about your work
- Highlight the significance and impact of your work

Please include any equality factors in Section 1.3.

Please note that there is a limit of 200 words (the row is sized accordingly).

~~I am Farhad Babaei, a Lecturer in Pure Mathematics at the University of Bristol.~~ My main area of research lies at the intersection of tropical geometry and complex dynamics. In addition, I have investigated various questions connecting tropical geometry and rigidity theory and will soon begin a project exploring interactions between tropical geometry and neural networks. I have also had the privilege of collaborating closely with world-leading experts in combinatorial algebraic geometry and complex dynamics.

In teaching, I developed and have lectured a modern Algebraic Geometry course emphasising combinatorial aspects for three years, addressing a significant gap in our school's offerings of a major subject in mathematics. Additionally, I have taught large first-year Linear Algebra classes, Mathematical Investigations, and smaller tutorial groups, and served as Unit Director for Linear Algebra. I am a co-director of Topics in Geometry and Discrete Mathematics, and mentor HIMR fellows in their teaching. I ~~received~~ ^{was awarded} achieving HEA Fellowship in 2023, and I continuously explore innovative teaching tools and seminars including TALMO—to enhance student learning. I provide mentorship, supervision and pastoral support to Research Associates, PhD, and Master's students and undergraduate students, and have co-supervised master's-level Data Science projects as well as a PhD-level Data Science (Compass-CDT) mini project.

1.2a Evidence against the framework (for promotion to level b)

Please provide a narrative summary of your case beneath with reference to the [Academic Promotions Framework](#) for guidance on completing Part 1 and Part 2.

The focus should be on the quality of your contribution over the quantity of activity. You may refer to your CV for what you have done and achieved, but this is the opportunity to highlight what has happened as a result. Please write in the first person.

Please note that the combination of Part 1 and Part 2 should be no longer than one side of A4.

Part 1 – Developing as an academic

Click or tap here to enter text.

Part 2 – Making an impact

Click or tap here to enter text.

1.2b Evidence against selected criteria (for promotion to level c or d1)

Please include evidence against the required criteria as described in the [Academic Promotions Framework](#). Note that **only the required number of criteria will be assessed**: nine from 15 for promotion to Lecturer / Research Fellow at level c and 10 from 15 for promotion to Senior Lecturer / Senior Research Fellow at level d1.

Please use the drop-down menus provided below to select the criterion and whether it is core or additional as appropriate. For each, please provide a narrative description of your contribution and the impact you have made. The focus should be on the quality of your contribution over the quantity of activity. You may refer to your CV for what you have done and achieved, but this is the opportunity to highlight what has happened as a result.

If you have recently switched pathways, please provide evidence of your contribution from across your academic career. You should also ensure that you include any contextual information related to your discipline. Please write in the first person.

Please note that there is a limit of 150 words for each entry (the row is sized accordingly).

R-1 Research output

Core

My research involves tropical geometry, a piecewise-linear counterpart of algebraic geometry, which are dubbed as polyhedral shadows of algebraic varieties. I introduced complex tropical currents to connect tropical geometry with the theory of currents, which, in collaboration with Prof June Huh (Fields Medal 2020), led to a counterexample to a longstanding conjecture in complex geometry. This work was further extended with Prof Karim Adiprasito (EMS Prize 2020). Recently, I developed a dynamical method for tropicalisation, and in an upcoming paper with Prof Tien Cuong Dinh (a world-leading expert in complex dynamics), we prove generalisation. I also ~~run a small~~ international research group investigating links between dynamical tropicalisation and conjectures in algebraic geometry and mirror symmetry in mathematical physics. In collaboration with Drs Sean Dewar and James Maxwell, I have explored connections with rigidity theory, and the article has received positive peer-reviews and will be in press soon.

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R-2 Research capacity and recognition	Core
<p>My work has led to invitations to speak at international conferences, including the European Congress of Mathematics (Berlin, 2016), and at seminars across the UK, Europe, and Asia—around 15 in the last three years. I have published in top journals such as <i>Duke Mathematical Journal</i> and <i>Mathematische Annalen</i>. I've been invited to present forthcoming work with Prof. Dinh internationally (Orsay, Georgia Tech) and in the UK (Durham).</p> <p>I regularly review for academic journals and major funding bodies, including UKRI and NWO. I have led several Focused Research Groups with collaborators from Switzerland, France, Spain, and the UK. I also support early-career researchers by contributing to successful grant applications in rigidity theory and neural networks. These collaborations have shaped interdisciplinary directions and helped promote my field.</p>	
R-4 Research supervision	Additional
<p>I am the primary supervisor of doctoral student Daniel Green Tripp, who has been working closely with me on research projects in combinatorial and tropical geometry. In addition to our joint work, I have supported Daniel in developing a strong network of collaborators; he recently co-authored a paper in the area of Tropical Geometry and Rigidity Theory.</p> <p>Previously, I mentored postdoctoral fellow Dr. James Maxwell (2022–2024), providing guidance on both his teaching and research. We collaborated on several projects, and I supported his professional development throughout his fellowship.</p> <p>Together with Song Liu, I also served as a co-supervisor for James Williams, a COMPASS-CDT doctoral student in Data Science, during his mini-project on Geometric Score Matching. This involved advising on mathematical aspects of the project and providing feedback on research progress and direction.</p>	
E-1 Education practice	Core
<p>I have taught over 2,000 students during my time at the University, from large first-year Linear Algebra cohorts to 4th year Algebraic Geometry. During COVID-19, I adapted teaching by creating pre-recorded videos, live sessions, online quizzes, and interactive tools such as PollEverywhere and discussion forums. As Unit Director, I coordinated with around 50 tutors and oversaw assessment design and moderation. I produced supplementary videos linking linear algebra to real-world applications and shared samples with colleagues, inviting feedback from the former Head of School. My teaching has been peer observed by colleagues Tobias Kley, Oleksiy Klurman, Mark Hagen, to whom I also offered reciprocal support, as well as to my PhD student and for postdoctoral fellows. I also continue to incorporate student feedback into my teaching. These experiences have helped me reflect on and improve both my own teaching and that of others, supporting inclusive and adaptable learning in changing environments.</p>	

EI-2 Translation and application of knowledge	Core
<p>I have been a personal tutor for 17 undergraduate students, offering academic and pastoral support throughout their time at university. Many of my tutees joined during my coordination of Mathematical Investigations in 2022, and several more in 2024. I regularly signpost students to relevant services such as Senior Tutors, Wellbeing, Careers, and Study Skills. Having lived in seven countries, I am sensitive to the diverse backgrounds and needs of my students. I also write reference letters for my tutees (as well as PhD students and postdoctoral fellows). I serve as Library Representative, supporting students in accessing resources. As a second supervisor to 13 postgraduate students, I have organised informal presentation gatherings for all 14 of my postgraduate. I continue to reflect on and improve my tutoring by engaging with student feedback, education seminars, including TALMO (Teaching and Learning Mathematics Online), and actively support a culture of inclusive and responsive tutoring.</p>	
E-3 Curriculum development	Additional
<p>I have designed and delivered the master's-level Algebraic Geometry course (MATHM0036, 2022–2025), filling a major gap in the University's curriculum in this core area of mathematics. The course connects algebra, geometry, topology, and polyhedral combinatorics, providing a foundation for further study in combinatorial algebraic geometry. I worked closely with internal and external examiners to ensure assessment quality. Over three years, 28 students (4th years and PhDs) have taken the unit, which has also drawn interest from research fellows.</p> <p>I serve as Unit Director, Lecturer, Exam Setter, and Marker, and developed original lecture notes and assessments. My teaching approach combines blackboard work, slides, pre-recorded videos, Zoom sessions, "gappy notes," and interactive quizzes. I also lead student-driven problem sessions.</p> <p>In addition, I have supported colleagues by advising on updates to Linear Algebra content and contribute to curriculum planning through my involvement with the School's Teaching Committee.</p>	
EI-3 Community dialogue	Additional
<p>I have engaged in outreach activities with Dr. Henna Koivusalo as part of the University of Bristol's widening participation efforts with local schools. The students, currently in Year 10 (ages 14–15), come from underrepresented backgrounds due to socio-economic or minority status. Their participation in the Maths and Physics Work Experience Week reflects strong motivation and interest in STEM. In preparation, I attended the University's "Active Outreach – Engaging School Students" training in February 2025. These sessions focus on accessible, hands-on topics linked to the presenter's research, designed to be inclusive and engaging for students with minimal prior knowledge.</p> <p>Earlier in my career, during a postdoctoral fellowship in Fribourg, Switzerland (2016), I volunteered to tutor Afghan refugees in basic maths, helping them build foundational skills to support integration and employment readiness.</p>	

LC-1 Leadership in the University	Core
<p>I serve as the PGR Admissions Tutor for Pure Mathematics. In this role, I review a high volume of applications each year and help match strong candidates with potential supervisors. This contributes to the recruitment of high-quality doctoral students and supports the continued strength and diversity of the Pure Mathematics research group.</p> <p><i>Can mention new Heilbronn rde?</i></p> <p>I have organised reading seminars on complex analysis, toric geometry, and tropical geometry to encourage shared learning and collaboration among colleagues and postgraduate researchers. These sessions have supported a positive and inclusive research culture within the School. I have also served as second supervisor to 13 PGR students, offering a confidential and supportive space for them to discuss concerns related to research or supervision. Where needed, I help communicate these issues to the Director of PGR Studies or the lead supervisor.</p>	
LC-2 Leadership in your discipline	Core
<p>Through collaborations with leading experts in both tropical geometry and complex dynamics, I have helped increase interest among mathematicians in each other's fields.</p> <p>I have co-organised several workshops and research events that foster external academic collaboration and national partnerships. These include <i>Tropical Days in Bristol</i> (LMS meeting, 2023, with James Maxwell) and three Focused Research Workshops on the cohomology of toric arrangement complements (2019–2022), held in Bristol, London, and at Queen Mary University, co-organised with Kevin Grace and Alex Fink. I am also one of the main organisers of the Tropical Geometry UK Network, which connects researchers across institutions to promote collaboration and knowledge exchange.</p> <p>Most recently, I have been working with three colleagues to explore links between tropical geometry and neural networks, with the aim of developing new interdisciplinary partnerships. These activities actively support national and international engagement within my research field.</p>	

LC-3 Collegiality	Core
<p>I am committed to supporting the wellbeing and professional growth of colleagues, especially in light of the support I've received during periods of extenuating circumstances. I cover for colleagues during illness or leave and contribute to the substantial marking load for lower-year courses. I have informally mentored several research associates, offering feedback on grant proposals and sharing teaching resources. I have also supported a number of research fellows in developing their teaching practices, including mentoring Dr. James Maxwell and contributing to his Development Review.</p> <p>Additionally, I take part in Annual Progression Meetings for PGR students—around 12 so far—offering guidance on their development reviews and referring serious issues to the PGR Director when needed. Beyond academic responsibilities, I help maintain safety and wellbeing in the School as the designated Fire Warden for our section and have completed informal first aid training, with formal certification scheduled for May 23, 2025.</p>	

1.3 Equality issues/individual circumstances:

Please include any equality issues/individual circumstances you may wish to bring to the attention of those considering your case and provide details of the impact that these have had on your academic output. This should include dates of any absence, any restrictions on ability to travel or network nationally or internationally, restrictions on working hours, details of any part-time working patterns, and any other factors impacting on the time available to undertake research and/or teaching and/or associated duties. These include any equality factors and/or the impact on your work due to Covid-19.

Unfortunately, since beginning my employment at the University of Bristol, I have experienced three bereavements—my mother in 2019, my brother in 2023, and my brother-in-law in 2025. I also suffered a serious illness in December 2020. These personal circumstances have inevitably affected my productivity, particularly in terms of the number of research outputs and my ability to accept seminar invitations.

However, perhaps my most meaningful achievement during this time has been finding solace in teaching, research, engaging with collaborators and contributing through my administrative role as PGR Admissions Tutor, which I enjoy. For instance, I taught my Algebraic Geometry course the day after my brother-in-law lost his battle with cancer, as I found the experience meditative and grounding.

Despite these challenges, I have remained faithful to upholding high standards of originality and depth in my research.

1.4 CREATE requirement (Pathways 1 and 3 only):

All staff newly appointed to Pathway 1 and Pathway 3 contracts, without a teaching in HE qualification should complete the CREATE scheme to gain Fellowship or complete the Health Professions Education programme. Engagement with CREATE/HPE should start within the first year of appointment, and completion should be within two years of appointment or before promotion (whichever is earlier). For those

seeking promotion to Senior Lecturer, CREATE must be completed (ratified) before applying. See the [Policy for staff participation in the CREATE scheme](#) and [CREATE webpages](#) for further information.

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Please confirm that you meet these criteria. ☐ Yes ☐ No

Please use the space below for details of how you meet this requirement.

Click or tap here to enter text.

I have discussed this application with my line manager and have their support: ☐ Yes ☐ No

Application Compliance Declaration

I confirm I have not exceeded any specified word count limits in my application: ☐ Yes ☐ No

I confirm I have completed Section 1.2 appropriately for my level and pathway: ☐ Yes ☐ No

I confirm my CV meets the specified [CV Standards](#): ☐ Yes ☐ No

I confirm I have completed my Initial Service Review: ☐ Yes ☐ No

I confirm I have not made an application for Promotion in the last 12 months: ☐ Yes ☐ No

I understand it is my responsibility to ensure I comply with the CV standards, Academic Promotion Framework rules and the Promotion procedure, and that failure to do so may result in my application being rejected with no right of appeal.

I confirm I have checked my application is compliant: ☐ Yes ☐ No

Candidate name:

Signed:

Date:

Click or tap to enter a date.

☐ Checking this box will be accepted instead of a signature if you are submitting this form via email

PLEASE EMAIL THIS FORM, ALONG WITH YOUR CV, TO YOUR HEAD OF SCHOOL

DATA PROTECTION: Please note that your application will be treated with an appropriate level of confidentiality and handled in accordance with GDPR and the Data Protection Act 2018 as detailed within the [staff fair processing notice](#). Your application form and/or CV will be made available only to those who need access to this information in order to fulfill their role in the promotion process.

will need to tick all these.