

This section is for Early Career Researchers. Please send suggestions for questions or topics you would like to see covered to [newsletter@lms.ac.uk](mailto:newsletter@lms.ac.uk).

## Excelling at Interview

“Dear X, I am a PhD student/postdoc. I’m applying for a permanent academic job or a fellowship. Can you suggest ways I can do well at interview? What sort of questions should I expect?” — We invite perspectives from academic mathematicians with experience as interviewer and as interviewee.



**Graham Niblo** is Professor of Mathematics at the University of Southampton. He works in geometric group theory and non-commutative geometry.

A lot of what the panel want to know about you is already on paper — your publications list, your references and your history have already qualified you for the interview, but the panel will want to explore any possible weaknesses and, for a first permanent academic job, how you are likely to transition from a life of independence and research to wider engagement with the Faculty.

Panellists are likely to have a range of backgrounds, not all in your area, so if you are asked to explain your research there will be more interest in the context than in technical detail. That will give you an opportunity both to explain to the non-experts why your research is interesting, and to demonstrate that you can communicate and interact with a range of colleagues. Make sure you know what other research is done in the department so you can discuss possible collaborations outside your immediate comfort zone.

You will probably be asked about your teaching experience, and it is good to lead with things you are enthusiastic about. Students find enthusiastic teaching more engaging and in the world of league tables engagement is key.

A good panel will try to give you the chance to demonstrate what you have to offer. They won’t be trying to trip you up, so don’t be defensive. Assume that they are genuinely interested in you (which they are or you wouldn’t be there).



**Anne Davis** is Chair of Mathematical Physics 1967 at the University of Cambridge. She has been Chair of the Faculty Board of Mathematics, Head of High Energy Physics and University Gender Equality Champion in STEM.

You will probably be asked to give a talk on your research. The panel will try to understand your research, even if it’s not in their area. You can put in technical details, but start with an introduction explaining the context, what you are doing and why. If you are asked a technical question on your research by the expert, answer the question technically. The expert can explain to the rest of the panel if necessary.

You will probably be asked which courses you could teach. You should give the panel a list of courses, from all years of the course and not just the specialist courses. If you are asked if you could teach X do not say ‘no’, instead say ‘I will need to spend some time preparing it, but yes’. Do not talk about teaching the brightest students only.

You may well be asked about PhD and MSc projects. Be prepared to give some examples.

You might be asked for what you see yourself doing in the next 5–10 years. You may also be asked where you see yourself in 5 years’ time. Be ambitious here. You will apply for grants from research councils and other sources to build your research group with PhD students and postdocs.

The most important thing is to prepare yourself for the interview at that particular university and not some arbitrary place, so look at their website, their personnel and their undergraduate courses.



**Anitha Thillaisundaram** is a Lecturer in Algebra at the University of Lincoln. She obtained her PhD in Group Theory at the University of Cambridge in 2011.

For most permanent academic jobs, teaching is just as important as research, perhaps even more important, depending on the university. You should demonstrate a willingness to teach courses outside your research area and to cater for weaker students. Student satisfaction is also a priority nowadays. Additionally most UK universities require academics to take on administrative roles, so you should be prepared to be asked about that, as well as about applying for grants.

It is good if your research overlaps or fits in nicely with the existing group, but this depends on the university's long-term goals: whether they want to strengthen their existing research group or branch out in a different direction.

I was asked in my interview where I see myself in five years. So your future goals could be something to think about. Also most interviews end with the interviewers asking if you have any questions – it would be good to have one or two! Lastly, remember that the university is looking to hire someone for a permanent position, so it would be good to show enthusiasm or a liking for the place, town or city, to give further evidence that you're keen to take up the position and move there in the long term.



**Charles Walkden** is Reader in Pure Mathematics and Director of Teaching & Learning in the School of Mathematics, University of Manchester. He received his PhD in Ergodic Theory at the University of Warwick.

We look for academics who are outstanding teachers as well as outstanding researchers and you need to be able to demonstrate this. You could be asked 'Briefly describe your existing teaching experience'. Don't just list courses or classes you've given (the panel will have already read this on your CV); instead, use this as an opportunity to describe your approach

to teaching, what you've done that worked, what you've done that didn't work and what you would change in the future.

Many maths departments teach mathematics to students on other degree programmes. Expect questions like 'Suppose you were teaching maths to engineering students, what do you think the main challenges would be?' or 'How would you keep a class of 100 materials science students interested in maths?'

A great (and hard!) interview question I heard is 'Suppose you met my aunt, who knows no mathematics. How would you explain in three sentences what your research is about?' Don't try to explain your most impressive theorem! Instead I'd be looking to see if you can connect your research (even if it's in a highly abstract area of pure mathematics!) to something tangible that a layperson could appreciate.



**Andrew Treglown** is a Senior Birmingham Fellow at the University of Birmingham. He got his PhD from the same institution in 2011.

For a permanent position, the interview panel will be looking at what new expertise and skills you can bring to the department. Perhaps you can foster new collaborations with academics at the university, or maybe there is a module you could design in a subject that is currently under-represented in the teaching. Invest some time before the interview to develop a picture of the research and teaching within the department.

You should convey precisely why your research is interesting (remember, often there are non-mathematicians on interview panels!). What is the most important research idea you have had? For permanent positions you should have a clear research 'vision'. What problems will you be working on in the coming years?

British universities also take seriously metrics such as the National Student Survey (NSS), Teaching Excellence Framework (TEF) and Research Excellence Framework (REF). I've had an interview panel ask me what a 4\* REF paper looks like and ask me to self-evaluate my own papers!

Enthusiasm also goes a long way. Make it clear you are passionate about research and teaching and excited about joining the university!