School of Physics & Astronomy

UNIVERSITY OF LEEDS

Round table discussion

Research funding and fellowship applications.

Prof. Helen F Gleeson OBE FInstP

Cavendish Professor of Physics

School of Physics and Astronomy

The University of Leeds

Leeds LS2 9JT , UK

h.f.gleeson@leeds.ac.uk

A potted biography

UNIVERSITY OF LEEDS

Cavendish Professor of Physics, experimental soft matter

- Degree in Maths and Physics; PhD in optics and liquid crystals;
- Strong links with industry, became a lecturer in 1990;
- Have held senior positions including Dean of Research (Manchester, EPS) and Head of School (Physics and Astronomy) at Universities of Manchester and Leeds;
- Fundamental research in soft matter physics (>220 papers)
- Innovation: >10 patents and formed 2 companies.
- Committed to encouraging inclusion and diversity - OBE in 2009.
- Currently hold EPSRC Established Career Fellowship/EDI Champion, work closely with the IOP and others.

Preamble

UNIVERSITY OF LEEDS

When can/should I start thinking about applications?

- Many here are early career and decisions about career paths are for the future. However, ‘standing out from the crowd’ will help any job application.

- There are many things that can be done at any career stage – some of which we’ve already heard about.
  - **Funding and bursaries**. More later, but this can/should include getting funding for conference applications, outreach, research visits.
  - **Being an advocate.** This could be internal to your organization or for external bodies (e.g. committees that often want ECR representation).

Plan for the afternoon

UNIVERSITY OF LEEDS

Part 1. **Where do good ideas come from** and how can they be developed to maximize chances of success?

What makes a good idea and how do you know?
Making time and headroom.

Part 2. **Funding opportunities and strategies**

Small monetary value, high return.
Fellowship – freedom to explore
Responsive mode, small monetary value, high return

PART 1

Where do ideas come from?

UNIVERSITY OF LEEDS

Academia can encourage top-down generation of ideas.

Sometimes this is okay, but it can be blocking

promotion

prizes

renown

Supporting bottom-up ideas

Often come from team discussions

Always credit the origin - ethics

D. Mistry, PhD student – discovered auxetic behavior in liquid crystal elastomers (2018)

Collaborators and diversity of ideas

Conferences, seminars

Industry-led challenges

Diverse groups

Do you think you could…?

Do you know how …?

PART 1

Taking ideas forward

UNIVERSITY OF LEEDS

PI-level, group level support

- PhD or project student allocation to explore new ideas;
- 'Socializing ideas' with trusted colleagues – does your vision fit, is it well-articulated?

Support from elsewhere

- Pump-priming funds – usually aimed at ECRs, but available to others?
- Annual allocation to academics – conferences
- Discussion workshops – networks, industry, wide-ranging groups

Making headroom – vital for ideas generation, refinement and writing

- Time management skills
- Workload, fairness
- Organization of teaching
- Support of new lecturers
- Sabbatical
- Proper parental and other leave arrangements

PART 1

University-level commitment

UNIVERSITY OF LEEDS

- There are University-level commitments to helping PDRAs to develop independence – the Concordat[1]. It is supported by Universities UK and many universities are signatories.

- Researchers are allowed minimum 10 days per annum for their professional development – this is usually training

- Researchers should also be allowed time and opportunity to develop their 'research identity and a broad range of leadership skills'.

- Managers of research should 'identify opportunities and allow time (in addition to the 10 days) for researchers to develop their research identity and broader leadership skills and provide appropriate credit and recognition for their endeavours'.

[1]Concordat to Support the Career Development of Researchers (https://researcherdevelopmentconcordat.ac.uk/)

PART 1

Examples from our team

UNIVERSITY OF LEEDS

PhD

PDRA

RESEARCH ARTICLE

ADVANCED OPTICAL MATERIALS

www.advopticalmat.de

Check for updates

Sub-Micron Diffractive Optical Elements Facilitated by Intrinsic Deswelling of Auxetic Liquid Crystal Elastomers

*Thomas Moorhouse and Thomas Raistrick**

Diffractive optical elements (DOEs) enable precise control over the direction and filtering of light, making them common components in spectrometers, waveguides, and sensors. There is great interest in tunable and sub-micron

production,[10] and biomedical technology,[11] similarly requires the production of structures with sub-micron periodicity. Here we present an approach

PDRA

PDRA

PDRA

RESEARCH ARTICLE

NANO · MICRO small

www.small-journal.com

Reactive Fluid Ferroelectrics: A Gateway to the Next Generation of Ferroelectric Liquid Crystalline Polymer Networks

*Stuart R Berrow, Jordan Hobbs, and Calum J Gibb**

Herein it is reported the first examples of reactive mesogenic materials (RMs) which exhibit fluid ferroelectric order based on the recently discovered ferroelectric nematic (N_F) phase. These materials N_F RMs and they provide the first steps toward the next generation of ferroelectric liquid crystalline

fibres,[5] but it was not long until applications in the fabrication of liquid crystal displays (LCDs) emerged, leading to far reaching implications in the multibillion-dollar LCD industry.[6–9] The applications for reactive mesogenic materials have con-

PART 1

Task 1

UNIVERSITY OF LEEDS

In groups, discuss the challenges in managing creating time to write proposals. This might be from the perspective of:

- You as an ECR researcher;
- You as a manager of an ECR researcher;
- You as an academic.

You might want to consider things such as:

1. **Time.** How much time could this take? How will it fit alongside other commitments?
2. **Communication**. Would you need to talk to somebody about your plans (Supervisor, PI, Head of Group/School)?
3. What are the **expectations around credit** e.g. authorship on publications or CoI status on grant applications?
4. For ECRs – how will you keep your Supervisor/PI on board? It's easy to underestimate time, which is very expensive and has probably been hard-won by somebody. **Independence ≠ autonomy**.

PART 2

Research strategy

UNIVERSITY OF LEEDS

What is your research strategy?

- **Research strategies are not just for institutions – you could have one too.**
  - I was sure I wasn't going to postdoc for too long
  - I was open to industrial and academic roles – networked with industrial researchers as well as academics where possible
  - I like teaching!

- **Strategies will be updated to reflect new circumstances or opportunities.**
  - As a new lecturer I needed to balance teaching, research and citizenship
  - It's important to 'pass' on opportunities that aren't right for you or at the right time

- **Short-medium-long term considerations.**
  - If you can do things that give you joy – do! But sometimes it will be important to take on a task or role that isn't much fun for longer-term benefit.
  - Small, high-value things can make a big difference (e.g networking)
  - Nobody can do everything. Choose where your focus is carefully and don't be frightened to stop things that aren't working in the way you want them to.

PART 2

Building funding

UNIVERSITY OF LEEDS

Funding approaches

- Small monetary value, high return. Can be light touch review.
  - Includes travel grants, bursaries, funded research visits – valid for all levels.

- Responsive mode;
  - Most common when in academic positions. Hard work. ~33% success rate, but good ideas that didn't make it can be re-used.

- Fellowships – freedom to explore & advocate;
  - Available at all levels (more later)
  - Earlier strategies can really help as fellowships are for you (more later!)

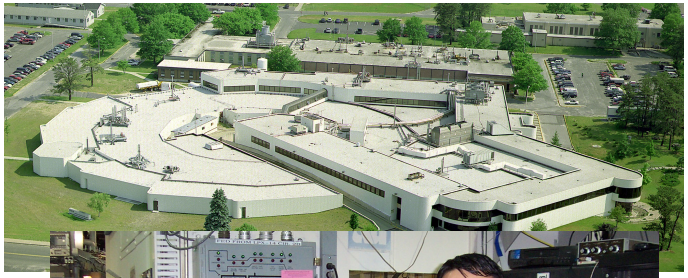
PART 2

Example

UNIVERSITY OF LEEDS

Resonant X-ray scattering
– eventually a 10 year project ~2000 - 2010

- **Early stages – pre-project**
  - Started x-ray work as a new lecturer building independence (from my ex-supervisor).
  - Excellent support from senior people including my PhD examiner.
  - My USP - I could measure structure from materials in real device geometries.
- **Building the collaboration**
  - I'd already started working with a chemist I admired – met at a conference, explained my work and asked to collaborate
  - One of his contacts attended a conference and was looking for collaborators….
- **Funding**
  - small EPSRC travel grants.
  - PhD studentships including self-funded
  - One responsive mode grant (after success of initial experiments).



>20 papers >10 ECRs.

PART 2

Building funding

UNIVERSITY OF LEEDS

Responsive mode and others

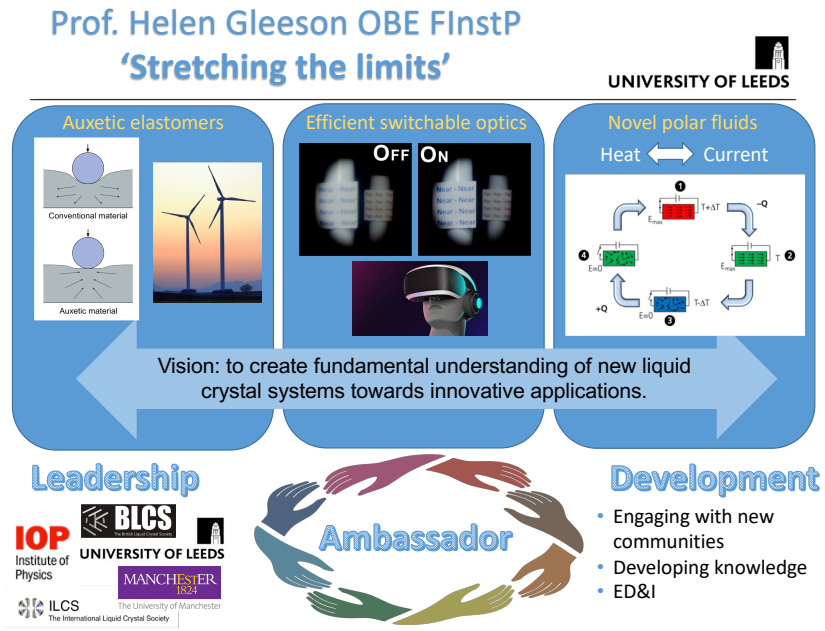
- My success rate was pretty typical – 33% = a proposal every 1-2 years.
- It was better when I focused my application at a relevant call or linked to a ‘grand challenge’ theme.
- Learned loads from refereeing other peoples’ proposals.
- I still hate it when my applications don’t get funded.

Building funding

UNIVERSITY OF LEEDS

Funding approaches

- Fellowships – freedom to explore & advocate. E.g. my Open+ Fellowship



Recycled material from two highly ranked but unfunded responsive mode grants
The '+' component built on EDI work I'd done over the years.

Summary

UNIVERSITY OF LEEDS

Take time to choose ideas that are **interesting** (to you and others) and that are likely to be funded – more in a moment!

Take time to refine your ideas and think about how to **communicate** them for the opportunity you've identified. Good ideas alone may not get funded.

Good ideas (and parts of proposals) can be **recycled**!

Rejections are not fun – I've had far more proposals rejected than funded as I suspect most people have. Take time to reflect and work out what was good and what can be improved.

Task 2:

UNIVERSITY OF LEEDS

What is meant by a ‘good’ idea?

A quick look at their web site shows the UKRI current themes for maths as:

- Mathematical modelling for next generation formulated products;
- Mathematical Innovators in the Digital Space;
  - https://www.kehubmaths.co.uk/2025/02/03/2m-ukri-networkplus-bid-mathematical-innovators-in-the-digital-space-minds-awarded/
  - https://www.kehubmaths.co.uk/
- Transition to a sustainable Zero Pollution Economy.

Observation: lots of work here also on life-sciences themes.

Discussion points (everyone)

What do you think about these?
Are they something you might want to contribute to?
What if your topic or interest doesn’t fit?

Task 3:

UNIVERSITY OF LEEDS

Fellowships are available for Maths….

- Future Leaders Fellowships
- Mathematical Sciences Fellowships (EPSRC)
  - postdoctoral
  - Open and Open+ (this is what I got with the + as EDI working with the Institute of Physics and others at national level).

Discussion points in groups.

- Many proposals require clear statement of ‘vision’ which needs to be understood by a non-specialist. To practice, describe your ‘vision’ to your group in the context of a recent piece of work you’ve completed.

- Fellowships are for you, but also a responsibility to be an advocate. Discuss how your past experience and future plans position you for this.