

Summer Students: Ph.D. Applications

Paul Hewett

[Director of Postgraduate Education]

Outline

- Paul
- Application and acceptance timescales
- Ph.D. programme length
- Application requirements
- Funding sources and what is covered
- Selecting a Ph.D. project and institution
- Why a Ph.D.?
- The Institute of Astronomy

Paul

- Undergraduate and Ph.D. University of Edinburgh
- Institute of Astronomy in 1982
- Overseen Ph.D. admissions and programme for some 37 years
- These days there is a title(!) – Director of Postgraduate Education

Application Timescales

- September-December 2024 – essentially independent of country [Australia/New Zealand excepted]
- Decision timescales
 - United Kingdom – March (STFC acceptance date 31 March)
 - USA – 15 April is final acceptance deadline
 - Europe – major institutions, end February / early-March

Ph.D. Programmes

- UK – three-year minimum length with STFC and other funders at 3.5 years [few four-year degrees]
- Europe – three years [after M.Sc.]
- USA – very different with two-year “masters” and three/four-year Ph.D. so six-years not uncommon
- With very few exceptions, research is undertaken in English

Ph.D. Applications

- On-line form (basic information)
- Normally a short CV
- First-class or at least a good 2:1 degree
- Two academic references and three for some USA universities
- Some form of application "statement".
Not very long
- For many universities – research area(s) and projects of interest
- For some USA universities, the GRE test but now less true

Choice of referees

- To be useful the individual needs to know something about you
- Variety is good – an academic (course) individual and project supervisor for example
- In general, UK university academic references are short and not very informative
- OK if you have strong academic performance and after interview for an STFC Ph.D. position

Choice of referees

- For applications overseas: references more important in practice
- Almost certainly need a project-supervisor referee
- Talk to your course/tutor academics regarding viability of securing a reference with enough content
- Much greater awareness of additional personal (e.g. medical) factors. Good if possible to use one referee who is aware of impact [e.g. on exam performance]

Relevant university information

- All university departments have on-line research-area descriptions [what they do]
- The vast majority will also have specific Ph.D. projects/supervisors available (UK and Europe)
- By implication, majority of departments expect you to have some idea about the Ph.D. topic but less true for USA [and IoA]

Relevant university information

- If you don't have a view regarding research topic and nature of the research work (see later) you should be exploring now (even while you are here)
- You will probably need to do a little research to identify potential universities/departments but use your own university academics to help
- Nothing wrong with a year working – has become more common of late

Ph.D. funding sources

- UK – all universities have a number of fully funded STFC positions (220 overall – majority are “astronomy”
 - Also a number of STFC “data-science” Ph.D. opportunities (five programmes)
- Many universities have, in addition, their own scholarships
- Europe – the major institutions, e.g. Leiden, Max Plancks, Heidelberg, top French,... have their own Ph.D. funding

Ph.D. funding sources

- USA – leading universities have their own Ph.D. scholarship funds
- Significant number of Ph.D.s with individual researchers (NSF,...)
- Also viable to take up “teaching assistantships” and “work” way through

Nature of Ph.D. funding

- University fees
- Maintenance allowance – UK amount for 2024/25 is £19237 per annum
- Basic research costs – office, desk, computer,...
- Normally some travel allowance, for workshops, conferences,...
- Ph.D.-specific costs [if needed] e.g. supercomputer time

Selecting a Ph.D. project, supervisor and institution

- Research topic important?
- “Research environment” very important
 - size/scale of institution, size/scale of research collaboration, supervisor(s) work methodology,...
- Nature of the research/work far more important than research topic –
 - computer simulations, observations, analytic theory, data-science/statistics, physics, theoretical physics,...

Selecting a Ph.D. project, supervisor and institution

- Choose what is right for you
 - Nature of the project work
 - Supervisor(s) philosophy/approach
 - Scale of the collaborative engagement
 - Size and other physical aspects of the host institution
 - What you will enjoy / find rewarding
- May not be obvious – talk to people and refine your assessment metric

Why undertake a Ph.D.?

- Question you should be asking yourself
- Aiming for a research/academic career (statistics)
- Enjoying the three+ years (won't do you any harm for employment)
- Targeting other employments
 - Data-science, machine-learning, AI
 - Problem solving, project management

The Institute of Astronomy

- Where much of what I have said so far is not true!
- Someone asked about our one-year M.Phil. By research – not a qualification useful for career in astrophysics
- We do not allocate Ph.D. studentships to individual academics [unless someone has a specific Ph.D. grant – unusual]
- Programme is therefore very “student focused” – you choose what to do and with whom to work
- We do need to make sure that there is a sensible cross-section between your interests and skill set and what we have to offer

Questions?