
# So you want to be an ARC Future Fellow?

## ECR Retreat

SWINBURNE UNIVERSITY OF TECHNOLOGY

Swinburne
think forward

The objectives of the *Future Fellowships* scheme are to:

- attract and retain outstanding mid-career researchers;
- build collaboration across industry and/or research organisations and/or disciplines;
- support research in national priorities that will result in economic, environmental, social, health and/or cultural benefits for Australia; and
- strengthen Australia's research capacity by supporting innovative, internationally competitive research

## Eligibility for Future Fellowships

- mid-career researcher - awarded a PhD on or between a 10-year period
- Can have Eligibility Exemption:
  - recognition of research experience or a research qualification equivalent to between 5 and 15 years research experience since the award of a PhD; and/or
  - variation of the qualification and/or timing requirements. Applications for the variation of timing will not be approved if the researcher was awarded their PhD after 1 March 2009 or before 1 March 1992

# Some Myths:

“ARC grants are a complete lottery”

> *Nope.*

“I can bang this off in a week”

> *Nope.*

“Doesn’t the research office just hit send?”

> *Nope.*

“It doesn’t matter if I put in a crap proposal”

> *Nope.*

## Q. Do I really want to do this?

### Pros

- Great boost to research time (4 years)
- Prestige
  - Promotions
  - ARC protects its own
  - Institution
- Comes with $
- Institutional support
  - More $?
- “Category I” income

### Cons

- Takes a lot of time
- Some bits are painful
- You will be evaluated
  - Can you handle that?
- It makes people think about your application and you.
- It takes up others’ time too
  - Internally
  - Referees

# Selection Criteria:

- Future Fellowship Candidate – 40%
- Project Quality – 35%
- Strategic Alignment – 15%
- Collaboration outreach – 10%

**So you want to be a Future Fellow…**

Evaluation

Reviewers tend to get multiple grants:

- Ultimately about relative ranking
  - You need to be “better” than others
- Have they met you?
- Have you talked to them?
- Have you worked with them?
- Have you visited their institution
- Are you just like “everybody else”?

## Make Yourself Appealing!

- Most people are not from your field.
- Make your field sound important and interesting!
  - *Get feedback from others, preferably "grumpy cynical old people"*
  - *Not "your mates"*
- Ask yourself the "so what" question.
- Use metrics where valid but don't think all citations are created equal.
  - I have published 23 papers since 2008
- Better than:
  - I am a prolific publisher

# Approved *Future Fellowships* proposals for funding commencing in 2010

| Salary Level | Proposals considered | Proposals approved | Success rate | Total requested funds (over project life) | Requested funds (over project life) of approved proposals | Funds allocated (over project life) | Percentage allocated of requested funds |
|---|---|---|---|---|---|---|---|
| **Salary Level 1** | 331 | 107 | 32.3% | $217,335,627 | $70,434,710 | $69,700,004 | 99.0% |
| **Salary Level 2** | 284 | 65 | 22.9% | $214,564,522 | $50,118,436 | $49,822,468 | 99.4% |
| **Salary Level 3** | 144 | 28 | 19.4% | $125,058,469 | $24,467,674 | $24,238,469 | 99.1% |
| **Total** | **759** | **200** | **26.4%** | **$556,958,618** | **$145,020,820** | **$143,760,941** | **99.1%** |

# Numbers and success rates for *Future Fellowships* proposals for funding commencing in 2010, by Disciplines

| | | | | | |
|---|---|---|---|---|---|
| **ARC Discipline Grouping ^** | Proposals considered | % of proposals considered | Proposals approved | Success rate | Allocated funds (over project life) |
| **BEM** | 241 | 31.8% | 65 | 27.0% | $47,520,348 |
| **HSE** | 223 | 29.4% | 59 | 26.5% | $41,425,800 |
| **PME** | 295 | 38.9% | 76 | 25.8% | $54,814,793 |
| **Total** | **759** | **100.0%** | **200** | **26.4%** | **$143,760,941** |

# Instances of identified targeted discipline areas in *Future Fellowships* proposals for funding commencing in 2010

| | Commencing in 2010 | | |
|---|---|---|---|
| **Targeted Discipline Area** | Instances* in proposals considered | Instances* in approved proposals | Success rate |
| **Earth Sciences** | 84 | 19 | 22.6% |
| **Economics** | 43 | 4 | 9.3% |
| **Education** | 47 | 7 | 14.9% |
| **English** | 7 | 1 | 14.3% |
| **History** | 44 | 13 | 29.5% |
| **Mathematics** | 91 | 24 | 26.4% |
| **Sociology** | 67 | 16 | 23.9% |
| **Total** | **383** | **84** | **21.9%** |

# Approved *Future Fellowships* proposals for funding commencing in 2011

| Salary Level | Proposals considered | Proposals approved | Success rate | Total requested funds (over project life) | Requested funds (over project life) of approved proposals | Funds allocated (over project life) | Allocation as a percentage of request |
|---|---|---|---|---|---|---|---|
| **Salary Level 1** | 354 | 109 | 30.8% | $233,320,003 | $72,982,395 | $70,896,443 | 97.1% |
| **Salary Level 2** | 215 | 67 | 31.2% | $163,926,906 | $51,231,693 | $50,153,511 | 97.9% |
| **Salary Level 3** | 92 | 27 | 29.3% | $80,734,807 | $23,697,508 | $23,292,719 | 98.3% |
| **Total** | **661** | **203** | **30.7%** | **$477,981,716** | **$147,911,596** | **$144,342,673** | **97.6%** |

## Numbers and success rates for *Future Fellowships* proposals for funding commencing in 2011, by Disciplines

| | | | | | |
|---|---|---|---|---|---|
| **ARC Discipline Grouping ^** | Proposals considered | % of proposals considered | Proposals approved | Success rate | Allocated funds (over project life) |
| **BEM** | 208 | 31.5% | 65 | 31.3% | $46,901,196 |
| **HSE** | 162 | 24.5% | 51 | 31.5% | $35,849,431 |
| **PME** | 291 | 44.0% | 87 | 29.9% | $61,592,046 |
| **Total** | 661 | 100% | 203 | 30.7% | $144,342,673 |

## Numbers and success rates for *Future Fellowships* proposals approved for funding commencing in 2012, by Discipline Grouping

| | | | | | |
|---|---|---|---|---|---|
| **ARC Discipline Grouping ^** | Proposals considered | % of proposals considered | Proposals approved | Success rate | Allocated funds (over project life) |
| **BEM** | 194 | 32.2% | 68 | 35.1% | $49,514,252 |
| **HSE** | 160 | 26.5% | 57 | 35.6% | $41,413,622 |
| **PME** | 249 | 41.3% | 84 | 33.7% | $60,631,393 |
| **Total** | 603 | 100.0% | 209 | 34.7% | $151,559,267 |

# Instances of identified targeted research areas in *Future Fellowships* proposals approved for funding commencing in 2012

| Targeted Research Area | Instances in proposals considered | Instances in proposals approved | Success rate |
|---|---|---|---|
| **Bioinformatics** | 77 | 23 | 29.9% |
| **Computer system security** | 5 | 2 | 40.0% |
| **Indigenous health and wellbeing** | 36 | 13 | 36.1% |
| **Managing innovation, renewable energy and green technology** | 114 | 29 | 25.4% |
| **Pattern recognition and data mining** | 57 | 19 | 33.3% |
| **Safeguarding Australia (especially electronic security, surveillance and detection)** | 65 | 22 | 33.8% |
| **Understanding culture and communities** | 127 | 40 | 31.5% |
| **Total** | 481 | 148 | 30.8% |

# Number of *Future Fellowships* proposals and success rates for Swinburne University

| Administering Organisation | Proposals considered | Proposals approved | Success rate | Allocated funding |
|---|---|---|---|---|
| **2010** Swinburne University of Technology | 6 | 0 | 0.0% | $0 |
| **2011,** Swinburne University of Technology | 9 | 3 | 33.3% | $1,894,038 |
| **2012,** Swinburne University of Technology | 7 | 4 | 57.1% | $2,612,484 |

## Place yourself in the eyes of the assessor!

No two assessors are the same!

- Try not to boast but show positivity and enthusiasm.
  - Use facts, not conjectures.
  - “I won the X prize for my PhD thesis for the top Science PhD at the University of blah”
    - NOT
  - “My thesis was highly regarded”
- Don’t insult the fields of others.
  - They might be your referees.
- Make the assessor feel they are helping you by awarding the Fellowship and that you are “a bit like a younger version of themselves”

## The Form.

The assessors are reading a ton of these. Make it a pleasure for a change!

Don’t fiddle with margins to squeeze in every word.

Don’t cheat with fonts.

Don’t fiddle with paragraph spacings.

Don’t make it hard to know where the reader is up to.

No Wall-to-Wall text.

# Don’t do this:

Attached PDF

**C6: Evidence of capacity to build collaborations across industry/research institutions/other disciplines.**

I have been extensively involved in building interdisciplinary collaborations throughout my career from large integrated and mid-sized R&D projects to smaller basic research projects. To date the activities occurred when employed as a Senior Scientist at Riso National Laboratory and as Associate Professor at iNANO at Aarhus University both in Denmark. The collaborations have been based on joint projects funded from various sources in Denmark where I was project leader or joint project leader on initiatives including:

*1) Innovation Consortia from the Danish Council Technology and Innovation (RTI).* These large collaborative projects are designed to dissemination knowledge between researchers, national and international research and educational institutions, advanced technology groups, and industries who complementary fields of interest. I was involved in designing the programs of research, establishing links with industry partners, negotiating collaborative agreements between partners, and writing the successful grants for three innovation consortia. I was also Project Leader in three other innovation consortia when I first joined Riso adding much needed expertise in surface and biointerface science facilitating stronger focus to the projects and generating scientific results of high impact. The Industries involved in these projects covered many sectors from health, energy, plastic manufacturing, consumer products, and entertainment. For all innovation consortia I was member of the Steering Committees helping define the project direction and future initiatives involving the partners.

*2) Integrated projects from The Danish Council for Strategic Research Council.* These medium sized projects are problem oriented aimed across several disciplines with industry partners. I was involved in discussions with collaborators and writing successful grants to obtain funding for two of these projects at iNANO, funded in the Program on Strategic Growth Technologies. I established the strategy for integrating nano and biotechnology aspects into a multidisciplinary project involving surface scientists, microbiologists and helping integrate test facilities into the production facilities of the companies in both projects.

*3) Joint Research project from the Danish National Advanced Technology Foundation.* I was Project leader and member of the Steering committee for the project ‘NanoNonwovens’ between Fibertex A/S and iNANO. My role was to introduce and integrate concepts of nanotechnology into existing commercial products of Fibertex A/S helping them exploit the potential of nanotechnology in new markets. Fibertex very rapidly established business activities using electrospun nanofibres for filtration applications. The project also developed new surface engineering technologies for nonwoven textiles to be used for Personal Care products. Pre-production trials of the new technologies are currently underway at Proctor and Gamble, Fibertex’s major customer. The activities have led to several patent applications, numerous publications in high impact journals, and training of BSc, MSc and PhD students, and Research Associates.

*4) Other initiatives.* I have worked on other Projects with strategic importance to the field of surface and interface science introducing new concepts to industrial related problems. This includes the Research Project in food sector in a future perspective, ‘Antifouling fish – reducing bacterial contamination during food production and food processing’ funded by the Danish Food Industry Agency. I lead the surface nanoengineering aspects of the project which involved microbiologists at the Danish Institute for Fisheries Research, and Danish Technology Institute. I was project leader at Risø Framework Program ‘Interface Design of Composite Materials’ where Risø was the lead institute. My role was to bring new nanoscience concepts into developing new surfaces for fibre based composites. The project involved two research departments at Riso, Aalborg University and several Industries, including NKT Flexibles, and LM Glasfiber.

Finally, my initiatives have led to many other important collaborations in Denmark and Internationally. I have a skill for identifying experts that have both complementary skills that add significant benefit to existing projects, but also those that challenge the boundaries of my own discipline, expanding the knowledge based and facilitating high impact research outcomes. The collaborations include those with molecular biologists, immunologists, cell and microbiologists, and clinicians. The institutions involved include Institutes of Molecular Biology and Medical Microbiology and Immunology at Aarhus University; Department of Orthopeadics, Aarhus University Hospital; the Institute of Medical Microbiology at Odense University Hospital; The School of Pharmacy at the University of Nottingham, Department of Chemistry, University of Illinois, Chicago; The Nanotechnology and Integrated Bioengineering Centre at The University of Ulster; CNR Institute of Optics in Pisa; NESAC/BIO at The University of Washington, CSIRO Materials Science and Engineering; Ian Wark Research Institute, The University of South Australia; AIBN University of Queensland; The Centre of Cell Engineering at The University of Glasgow; and Institute of Macromolecular and Textile Chemistry, RWTH Aachen, Germany.

# Do this:

## The Radio Universe at 1000 frames per second.

### Aims:

Brilliant bursts of light from exploding stars in the distant Universe have transformed our understanding of the Cosmos over the last two decades:

- In *gamma-rays*, bursts have elucidated the fate of the most massive stars and enabled new probes of the Universe and the physics of black hole formation (Kulkarni et al. 1998).
- At *optical wavelengths*, Type Ia supernovae have provided standard candles with which to measure the acceleration of the Universe and the existence of "dark energy", resulting in the awarding of the 2011 Nobel prize (Riess et al. 1998, Perlmutter et al. 1999).

Most recently, our team has confirmed that a population of coherent *radio bursts* from cosmological distances exist and that they offer a new insight into the history of the Universe (see section D2).

These four new "Lorimer bursts" (after Lorimer, Bailes, Narkevic, McLaughlin & Crawford 2007) confirm that some 10 thousand times a day the sky is lit up by millisecond-duration radio flashes from billions of light years away.

This project aims to:

- Use a radical new low-cost supercomputer design to transform Australia's largest radio telescope (Molonglo Observatory) into a highly efficient burst and pulse detector that will image the sky 1000 times per second and discover a Lorimer burst every few days.
- Use the Lorimer bursts to perform the first detailed study of the ionized *intergalactic* medium, in effect "weighing" the normal matter content of the Universe.
- Create a unique software correlator to parallel process the voltage data to enable multiple science objectives to be pursued simultaneously, including the daily monitoring of 500 neutron stars' rotation.
- Make our science-ready data publically available virtually instantaneously, and:
- Pioneer the use of Australian data by "citizen scientists" – to classify and follow up the many transient sources we expect to uncover.

The planned instrument will use inexpensive off-the-shelf graphics card technology (GPU) for dramatic cost reductions relative to traditional radio telescopes, and will place Molonglo at the forefront of Lorimer burst and pulsar research. Our inexpensive "software telescope" will also serve as a test-bed for the techniques we intend to use on the upcoming Square Kilometer Array telescope – the world's largest – to be built in Australia and South Africa over the next decade.

### Background:

It is often forgotten that Australia's largest radio telescope is the 18,000 $m^2$ Molonglo synthesis radio telescope (pictured right) in NSW (Mills 1981). The instrument has 6 times the collecting area of the famous Parkes 64m radio telescope (Kerr 1959), five times that of the Australian SKA Pathfinder (Johnston et al 2008) and almost ten times that of the Mileura Wide-field Array (Tingay et al 2012).

Shortly after completion in 1967, the telescope was used to make tremendous advances in searches for, and studies of pulsed radio emission sources – now known as "pulsars" producing a flurry of Nature papers e.g. Large et al (1968), Large & Vaughan (1968), Vaughan et al (1969), Large et al (1969), Mills (1969). Pulsars are the collapsed cores of once-massive stars. Although they are 500,000 times the mass of the Earth they are only some 20 km in diameter and

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**Part A.**

A1. Admin org name:

Swinburne University of Technology

A2. Title:

*Make sure not something the minister will kill.*

- Technical and Fundamental – good
  - Cute or cheeky – BAD
  - Too specialised – BAD

A3 Personnel: Automatic

A4 Organisation: Automatic

## Part A continued.

- A5 Summary (750 words)
    - Make it understandable by non-discipline experts.
    - Avoid acronyms.
    - Make the minister like it.
    - This bit requires some crafting – some assessors have already made there mind up by here!

## Part A continued

- Part A6 Public release
  - IMPORTANT!
  - Some assessors understand this better than A5.
  - It will go public and appear in shock-jock headlines.
    - Scientific
    - Radical
    - Element of risk but high gain science
  - A7 Impact statement (~75 words)
    - Has to sound like it will have an impact.
    - Avoid “constrain models”!

## B1: Strategic research priorities

Include if true but don’t otherwise.

Not sure how important/unimportant this really is?

## B2: National Research Capacity

Better be true!

B3 Targeted research area

- Be careful as might end up with assessors who think it isn’t!

## B4: FOR Codes

These determine your assessors!

B5 SEO Objective:

Relatively unimportant I think.

B6 Keywords:

Choose carefully – it will go to assessors based upon these.

## B7: International Collaboration

The department loves China and maybe India!

If you use people in these countries make sure they are *REALLY GOOD* or have access to *REALLY GOOD* toys.

Avoid collaborators who are not very senior/good, countries renowned for dodgy/crap science.

## B8: Organisations

Only include very good ones.

## C1: Career and Opportunities

Last five years.

- Don’t sound like a victim!
- Be positive, positive, positive!
- Include only significant career interruptions
  - Babies are good!
  - Avoid tales of depression.
  - Avoid experiments that failed.
  - Avoid everyday things that happen to everyone

## C1: Career and Opportunities

Last five years.

Tell a “beautiful story” of your career.

Make the assessor feel like due to their wisdom and benevolence they can complete it!

Talk about your Nobel-prize winning supervisors, your peers, talk up the Australian community.

Be chronological, ends up with you as a Future Fellow then academic/researcher. Make the FF a logical next step.

Provide and explain:

i. The number of years since you graduated with your highest educational qualification;

ii. The research opportunities that you have had in the context of your employment situation, the research component of your employment conditions, and any unemployment or part-time employment you may have had;

iii. Whether you are a research-only, teaching and research, teaching-only, teaching and administration, research and administration, or administration-only academic, giving any additional information (for example, part-time status) needed to understand your situation. Give an indication of what percentage of time you have spent over the last five years in those roles;

iv. Any career interruptions you have had for childbirth, carer's responsibility, misadventure,

or debilitating illness;

Provide and explain:

v. The research mentoring and research facilities available to you; and

vi. Any other aspects of your career or opportunities for research that are relevant to assessment and that have not been detailed elsewhere in this Proposal (for example, any circumstances that may have slowed down your research and publications) or affected the time you have had to conduct and publish your research.

Note: ‘over the last 5 years’ is defined as from 1 January 2009 onwards

## C2: Publications

Present nicely.

Bold face your position.

Use et al.s if there are a gazillion authors.

Johnston, Kramer, **Bailes**, + 200 others.

Asterisk most of them.

Mention how many citations if significant.

Maybe reverse-order with numbering to show how many?

## C3: Ten career best

Look up citation metrics to help choose.

Make sure at least a couple are very recent.

List in reverse chronological order.

Stress your role (if allowed) in italics.

Make it clear that you are “significant” in the field because of these publications.

## C4: Most significant contributions

Should be based upon publications.

- Externally verified metric of contribution.

Add any prizes you won because of these contributions, or prestigious fellowships/honours.

Avoid repeating what was in C1. Repetition annoys referees.

Don’t cram everything together. The referee doesn’t want to read this any more than you want to write it.

Make it sound like you are not just starting in this field and that it is a logical extension to your skillset and training.

## C5: Evidence of high quality innovation and national and international standing!

Should be based upon publications.

- Externally verified metric of contribution.

Give examples of projects that resulted in high impact papers.

Give examples of your ideas, not your supervisor’s.

List international conferences/workshops.

Everyone referees papers, don’t act like a hero just because you do too.

Make it clear you CONTRIBUTE BACK TO THE COMMUNITY. Time assignment committees etc etc.

## C6 Collaborations across industry/research institutions and other disciplines.

Don’t make stuff up.

Think laterally.

If you are sitting in your office working on your own perhaps an FF is not for you?

## D1 The project Description!

This is really important.

Should be pleasant to read and look nice!

Keep in mind the final panel will include non-astronomers too!

Should say very early on what the hell you are trying to do in plain language, preferably with bullet points.

Include diagrams and figures with legible fonts/sizes.

Use the discipline norm for referencing.

Ensure you refer to yourself on page one.

## D2 References

Hopefully you will appear in them.

## D3 Strategic Statement

Help us:

Provide a paragraph as to why you are so great.

Provide a paragraph about the environment.

## D4 Medical eligibility.

Make it sound like you aren’t cheating.

## E1 Budget

No round numbers!

Sometimes you get 99% of what you ask for – so ask for everything!

Other projects will cut you ruthlessly!

Protect the fortress!

Justify everything.

Don’t use round numbers:

Workstation: 10K

## F1 Non-salary funding

Make it crucial to the project – you will get it if at all reasonable!

Don’t use 4 pages just because you can.

F2 Our contributions

Laud our generosity!

**G.**

Salary range

Go for something appropriate. You are competing with higher people.

G13 Affiliate with something if you can.

G14 Students

List them.

## I. Research Support

This is good if you have it.

Make it clear this is not double-dipping.

## J. Progress

Make it sound great.

**Finally:**

Get a ruthless person to critique a draft.

Allow enough time. Putting in a bad application might haunt you later on.

Use it wisely. It is very easy to waste money when you are used to getting none.

Good luck!