

Unraveling the mysteries of faculty applications (in)

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We need to thank Profs. Craig Hawker and Ram Seshadri at UCSB

⇒ They provided much of this information! (w/ permission)

<https://www.mrl.ucsb.edu/~seshadri/IGERT-MRL-Faculty-development.pdf>

Outline

Overview

Applying

Interviewing

Negotiating

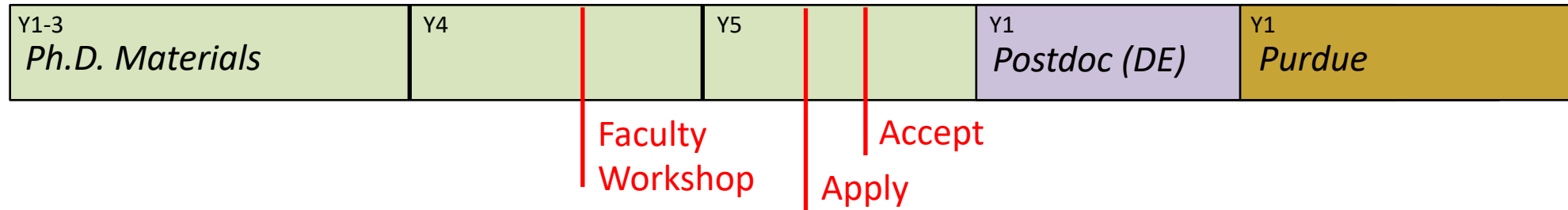
Additional resources

Final Thoughts

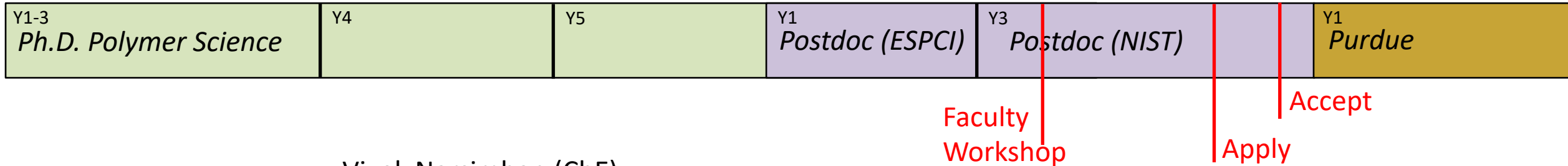
Applying takes a lot of time – more than you probably think
Therefore, start early; look for jobs, contact faculty members, think about research proposal

Panel Career Timelines

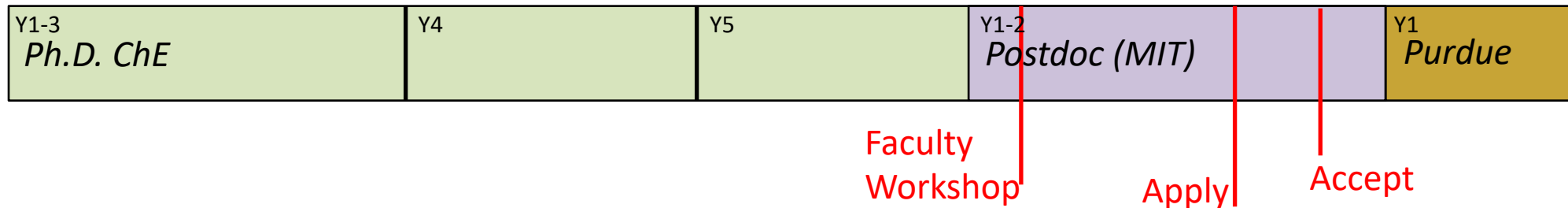
Michael Titus (MSE)



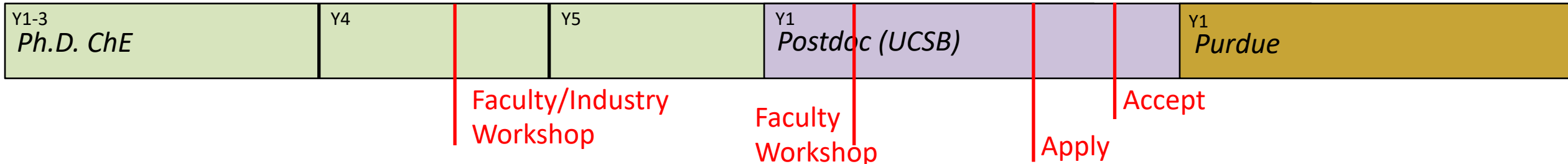
Chelsea Davis (MSE)



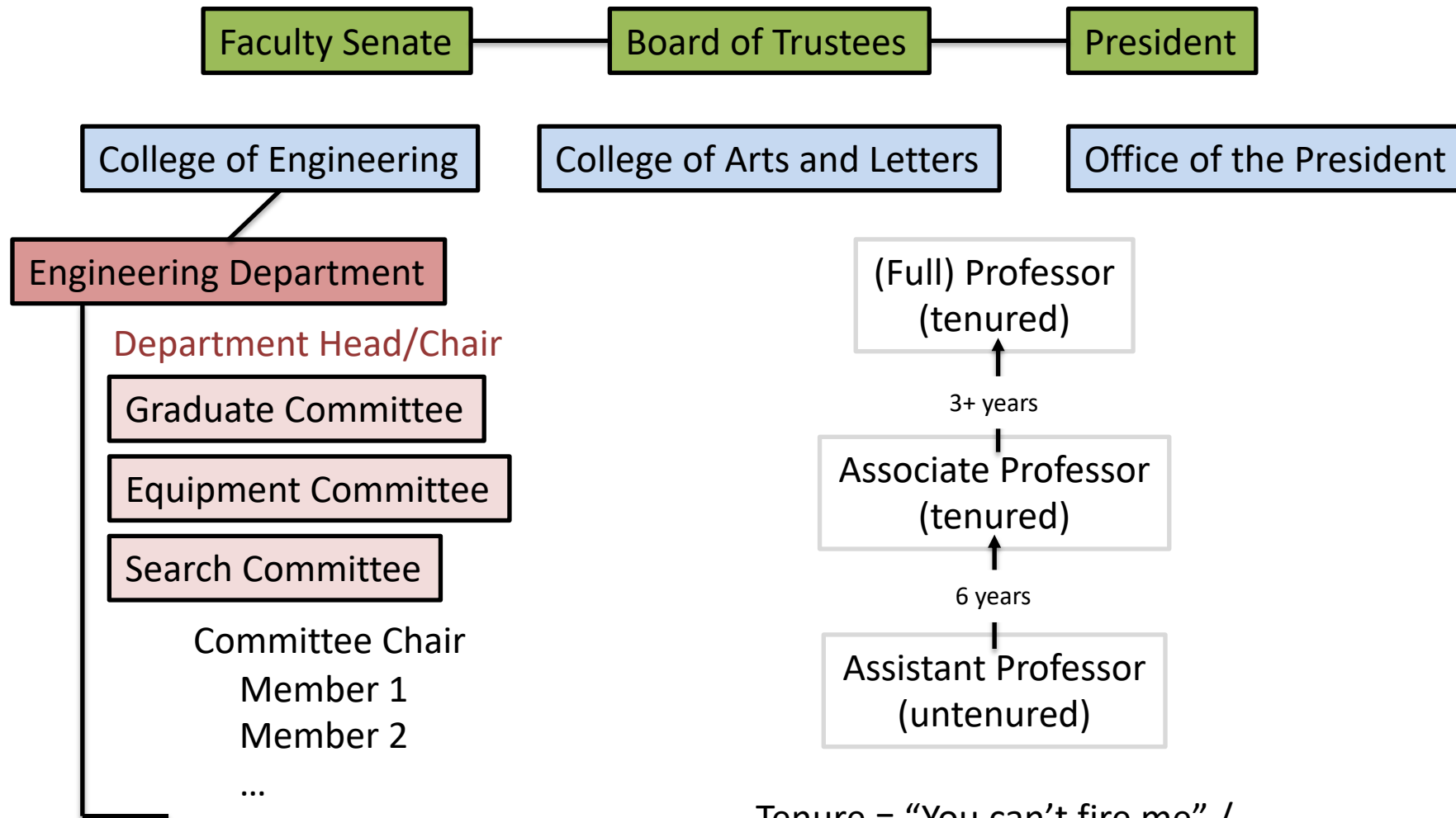
Vivek Narsimhan (ChE)



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Overview: American University Structure



Tenure = “You can’t fire me” /
“I’m ineligible for many grants”

Overview: The Process

Summer

\$\$\$ => Department

Fall

Search Committee is formed – research area is identified (bio, metals, etc.)

Spring/
Summer

Job description/ad published

Sometimes purposefully vague! Ask contacts at University for what they are looking for!

Aug-Jan

Committee reviews applications, 6-12 applicants identified

Usually each member is able to “champion” one or two applicants – this helps you greatly!

Dec-Mar

Phone / Skype interviews

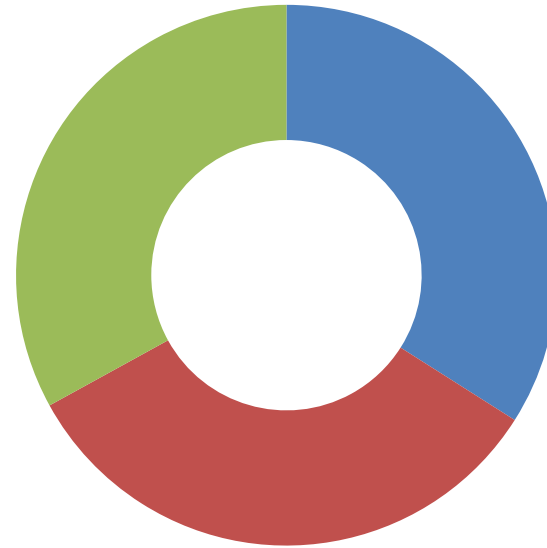
2-5 on-site interviews

Feb-May

Negotiations and final decision

Life in Academia

What Universities say:

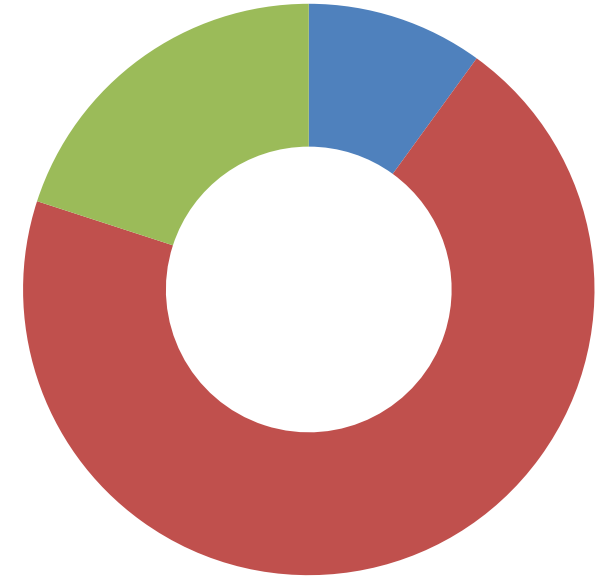


What they actually mean:



Research University (R1)

- Service
- Teaching
- Research



Primarily Undergraduate Institution (PUI)

Applying: Which institution is best for me?

↑
more research
more funding
↓

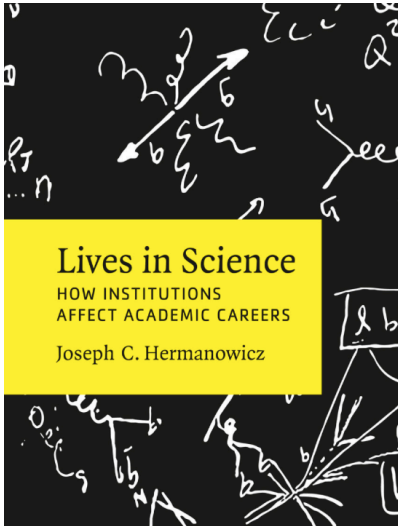
R1 University: e.g. MIT, Purdue, UCB
(includes Association of American Universities www.aau.edu)

R2 University: e.g. Colorado School of Mines

R3 University: e.g. Villanova University

Primarily Undergraduate Institution (PUI) – Liberal Arts Colleges:
Trinity College – SUNY – CSU – Butler University – Cal Poly

↓
more teaching
less research
↓



Lives in Science: How Institutions Affect Academic Careers

Joseph C. Hermanowicz

University Of Chicago Press, 2012, ISBN-10: 022600564X, ISBN---13: 978---0226005645

Applying: Which department is best for me?

- Not all institutions have your Ph.D.-equivalent department
- Sometimes MSE is lumped into Mech Eng or Chem Eng
- Maybe you would fit better in a different department anyway!

Keep your job search broad

Consider deadlines! Application posting dates / submission windows differ, depending on institution/field

I found MSE departments begin accepting applications
in Aug-Oct, end in Dec-Feb (sometimes remain open)

ChE departments -> submit one month before AIChE meeting

Come up with a strategy for applications that works for YOU!

Applying: How do I find job postings?

Personal Interactions

Word-of-mouth (before job posting)

Talking to others at conferences

Solicitations

E-mail

Postings in journals, professional societies

Websites

<https://www.higheredjobs.com>

<https://careers.insidehighered.com>

<http://www.academickeys.com>

Applying: The Complete Package

- Cover Letter
- Curriculum Vitae
- Research Statement
- Teaching Statement
- Letters of Support

Applying: Cover Letter

Depending on field / institution, use or do not use university letterhead.
You can also make your own letterhead.

Explain why you would be a good fit

- University-wide programs (hiring initiatives)
- College-wide programs
- Department goals

How you can contribute to the department's growth

- In what areas can you help grow the department's expertise?
- Who can you work with
- What are your expertise?

Why the University and department would be good for your career

- Are you a good fit for the University 'atmosphere'?
- How can your expertise benefit other departments, other colleges?

Applying: Curriculum Vitae

Generally, highlight what is most important in your CV. *Example* of CV organization:

<u>1st page</u>	<u>2nd page</u>	<u>3rd page +</u>
Research interests	Publications	Mentoring
Education History	Oral Presentations	Funding
Employment history		Etc...
Big awards (?)		
Professional Activities (?)		

Be concise and impactful!

Research interests: ~~Studying alloys at the fundamental level using LAMMPS to improve high temperature strength~~
Leveraging solute interactions with crystalline defects to improve strength

Applying: Publications

Publications

Submitted and Prepared Manuscripts (available upon request)

8. **M.S. Titus**, R.K. Rhein, P. Dodge, A. Mottura, G.B. Viswanathan, A. Suzuki, M.J. Mills, A. Van der Ven, and T.M. Pollock, "First-principles cluster-assisted modeling of Suzuki Segregation near stacking faults in L1₂-containing Co-base Superalloys," to be submitted November 2014.
7. **M.S. Titus**, M.P. Echlin, P. Gumbach, and T.M. Pollock. "Dislocation Injection in Strontium Titanate by Femtosecond Laser Pulses," to be submitted October 2014.
6. **M.S. Titus**, A. Mottura, G.B. Viswanathan, M.J. Mills, and T.M. Pollock. "High Resolution Energy Dispersive Spectroscopy Mapping of Planar Defects in L1₂-containing Co-base Superalloys," submitted August 2014. Under Review.

Refereed Journal Articles

5. **M.S. Titus**, Y.M. Eggeler, A. Suzuki, and T.M. Pollock. "Creep-induced Planar Defects in L1₂-containing Co- and CoNi-base Superalloys," *Acta Materialia*, (2015). In Press. [doi]
4. J. Zhu, **M.S. Titus**, and T.M. Pollock. "Experimental Investigation and Thermodynamic Modeling of the Co-rich Region in the Co-Al-Ni-W Quaternary System," *Journal of Phase Equilibria*, (2014). In Press. [doi]
3. Y.M. Eggeler, **M.S. Titus**, A. Suzuki, and T.M. Pollock. "Creep Deformation-induced Antiphase Boundaries in L1₂-containing Single Crystal Cobalt Base Superalloys," *Acta Materialia* **77**, 352-359 (2014). [doi]
2. **M.S. Titus**, A. Suzuki, and T. M. Pollock. "High Temperature Creep of New L1₂-containing Cobalt-base Superalloys." In E. Huron, M. Hardy, M. Mills, R. Montero, P. Portella, J. Telesman, and R. C. Reed, editors, *Superalloys 2012*, Seven Springs, PA, USA, 2012. The Minerals, Metals and Materials Society, Warrendale, PA, USA. 823-832 (2012). [doi]
1. **M.S. Titus**, A. Suzuki, T. M. Pollock, Creep and directional coarsening in single crystals of new γ - γ' cobalt-base alloys, *Scripta Materialia* **66**:8, 574-577 (2012). [doi]

Invited Oral Presentations

14. M.S. Titus, Y.M. Eggeler, A. Mottura, A. Suzuki, M.J. Mills, and T.M. Pollock. *Single Crystal Creep Deformation Mechanisms and Planar Defect Energies in L1₂-containing Co-base Superalloys*. Air Force Research Laboratory, Dayton, OH (2014). Host: Dr. Adam Pilchak.
13. M.S. Titus, Y.M. Eggeler, A. Mottura, A. Suzuki, M.J. Mills, and T.M. Pollock. *High Temperature Single Crystal Creep Deformation Mechanisms of New L1₂-containing Co-base Superalloys*. IMDEA Materials, Spain (2014). Host: Dr. Teresa Pérez-Prado.
12. M.S. Titus, Y.M. Eggeler, R.K. Rhein, A. Suzuki, M.J. Mills, and T.M. Pollock. *Single Crystal Tensile Creep Deformation Mechanisms and Planar Defect Energies in L1₂-containing Co-base Superalloys*. The Ohio State University, Columbus, OH (2013). Host: Prof. Mike Mills.
11. M.S. Titus, Y.M. Eggeler, A. Suzuki, and T.M. Pollock. *Single Crystal Tensile Creep Deformation Mechanisms in L1₂-containing Co-base Superalloys at High Temperature*. Ruhr-Universität of Bochum, North-Rhein-Westphalia, Germany (2013). Host: Prof. Gunther Eggeler.

Suggested format:

1. Reverse chronological order
2. Include doi links
3. Full bibliographic information
 - no et al...
 - maintain same style throughout
4. No "In Preparation"
 - unless you are 100% willing to share it!
5. No "Submitted to *Nature*"
 - what if you're rejected?
6. Separate peer-reviewed from non-PR
7. No h-index or i10
 - save for cover letter if really impressive
8. Separate undergrad, grad, postdoc (if you want)

Applying: Supporting Letters

3-5 letters generally required – sometimes only required if you get through the first round

Consider: Do they know you and your work well? Have you spoken to them about your career goals and ambitions?

People who *should not* be writing letters for you may *not tell you so!* It won't be bad – it just won't be very effective.

Letters from very distinguished people may help, or may not be impactful.

How well do you know the Nobel Laureate? Does he/she even remember your name? Co-author is not a sufficient reason for choosing someone.

Tips: Ask recommenders BEFORE submitting application; give your recommenders complete list of institutions and departments you'll be applying to; give your recommenders your full application package

Applying: Research Proposal

Depending on experience, this is the most difficult part (it was for me)

3-5 pages for most departments (incl. references)

- longer for other departments (ChemE, Physics) -

2-3 overarching projects – don't cram it with text! 1 Figure per page!

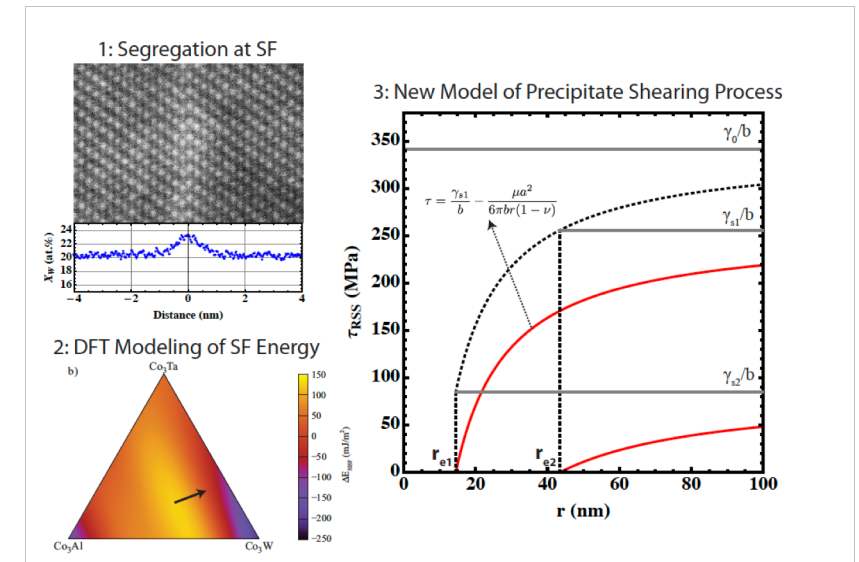
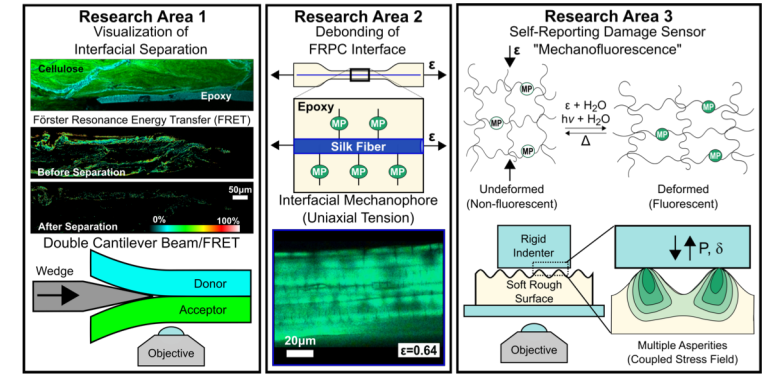
Is the proposal exciting? Is it original? Do you have a 10+ year vision? Is it yours?

(these can be very, very difficult to achieve)

Can a graduate student be excited reading it?

Grant Proposals (NSF, etc) can be a good start – but format is very different

=> instead ask new faculty members for theirs



Applying: Teaching and/or Diversity Statement

Very important for PUIs (multiple pages). Typically only one page for R1's (no more).

For R1's, a bad statement can degrade your application,
a good statement can only slightly improve it

How did your favorite professors teach? How do you like to teach?

Consider:

What courses would you be able to teach? What courses could you develop to fill out the department's curriculum?

Outreach experiences can go here

Diversity:

What plans do you have to increase diversity in the department/university?
=> Look at existing programs at the university to help with this

Interviewing: Phone / Skype

Congratulations! You are in the top 5%!

Ask for the members on the search committee because **you will interview with the search committee for about 30 minutes**, with one question from each member (my experience)

Be in a quiet, completely uninterruptable place

Wear at least business casual for the Skype interview

Place the computer at a natural height

Test your connections!

Practice your answers and prepare your own questions (you need to have a few)

Know what equipment you would need to be successful



<https://www.businessinsider.com/the-worst-mistakes-youre-making-in-a-video-interview-2017-4>

Interviewing: Possible Questions

- **If funding were suddenly dropped for your area of research, what would you do?**
- How do you motivate people?
- How would you contribute to a [supporting] atmosphere?
- What is an example situation when teaching went well for you?
- With your background and research, how can XX help you do your research? E.g. what facilities, people are available.
- **Why are you a good applicant for the advertised position in [XX area]?**
- What research areas at XX are you interested in?
- **What is your greatest scientific achievement to date?**
- What courses would you be interested in teaching?
- Please give an example of topics you would want covered in an upper-level undergraduate course
- **How would you like your time to split between research and teaching?**
- How large would you like your equilibrium group size to be?
- **What will be your first two large proposals? To which agencies will you send them?**

Interviewing: On-Site

Congratulations! This is a big accomplishment!

Your entire stay at the University is part of the interview – every part of it!

Ask for details about your interview: length of presentation(s), whom you will be meeting
– *they may not tell you everything* –

Example schedule

Night before: Dinner with Faculty

	<u>Day 1</u>		<u>Day 2</u>
Morning:	Breakfast with Faculty Research Talk Meetings with Faculty	Morning:	Meeting with College Dean Meeting with College Staff *Meeting with Head/Chair
Afternoon:	With students / faculty Meetings with Faculty “Chalk Talk”	Lunch +:	More meetings with faculty(?) Free time to explore (?)
Dinner:	With faculty, chair/head		

*prepare list of equipment to purchase for this meeting

Interviewing: The Talks

1. The seminar / colloquium

- Your research and some long-term vision
- 45 mins + 15 mins questions – Do not go over!
- Students and faculty attend, may be recorded (for internal use)
- Aim for graduate level and delve into details only a few times

2. “Chalk Talk” / Proposed research talk

- Your long-term vision (decades) and some details, usually in front of *only* faculty, behind closed doors
- Practice extensively with other faculty and senior members – make them grill you!
- Do not assume everyone in audience heard your first talk
- 30 minutes maximum with 10-15 slides, you will be interrupted with questions throughout – don’t waver!
- Sometimes you can attend Chalk Talks as a postdoc / grad student – see if possible!

3. Teaching seminar

- Prepare a ‘mock’ lecture of ~15mins
- Remainder 15-30 min discuss your teaching philosophy
- Refer back to your ‘mock’ lecture – what techniques did you incorporate, why?
- What activities did you include? Why?

Never be dismissive while answering questions. Do not name drop. Do not shift responsibility: “I didn’t take this data – it’s probably not right.”

Interviewing: Miscellaneous

You may also meet with:

Faculty member(s) from underrepresented group(s)

Staff member who focuses on diversity/work atmosphere/work-life balance

Real estate agent / relocation specialist

In the US, some questions are illegal for interviewers to ask:

age, race, ethnicity, or color,

disability

gender or sex,

marital or family status or

country of origin or birth place,

pregnancy

religion,

These can be disguised: “Who will take care of your children while you’re at work?”

“What does your husband/wife do?”

⇒ Questions must be directly relevant to job requirements!

Negotiating: The Offer Letter

Big congrats! You are probably the top candidate (or one of 2).

Tips on negotiating salary: you don't have much power here – but see what your peers at the institution are being paid (online database, professional society surveys)

You can always see how much professors are paid at a public university:

Google: “XX University salary database”

Ensure you receive equal pay to other 1st-year Assistant Professors

At R1 university, you will probably receive:

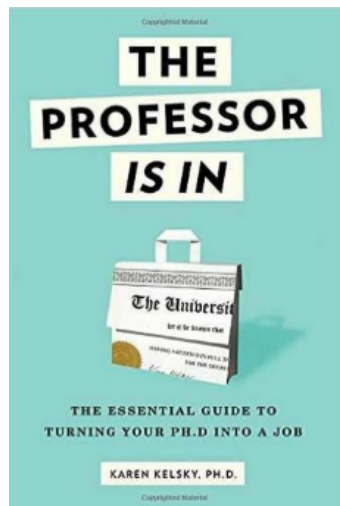
- Equipment / major scientific purchases
- Student funding 4-6 years
- Summer salary 10 – 20 weeks
- Guaranteed lab space
- Discretionary funds
- General-purpose funds
- Reduced teaching load for one semester / one year

Salary + these benefits = \$800k to \$2M for public universities

If you have good reason to change amounts in any category, this *could* be negotiated...

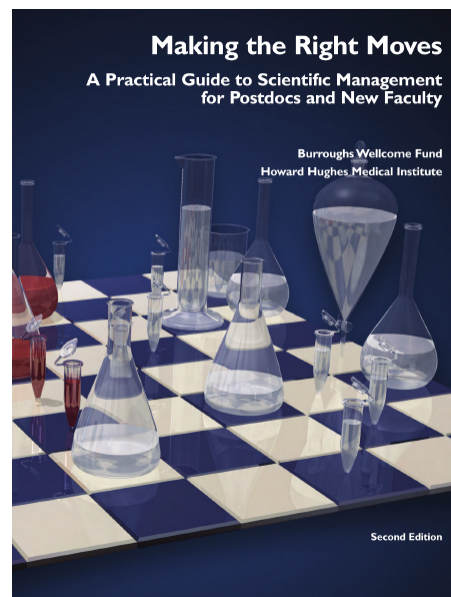
Pay attention to “sunset” clauses – when must you expend the money? 2 years? 4?

Additional Resources



TheProfessorIsIn.com – and her book:
The Professor Is In
Karen Kelsky

Making the Right Moves
Burroughs Wellcome Fund
Howard Hughes Medical Institute



Final words

- Keep your ear to the ground – learn about open positions early!
- Apply to future faculty workshops (especially at Uni's you are interested in)
- Make your name (and face) known!
- Do not be afraid to ask questions to the search committee (but not too many)
- Proof-read!
- Practice, practice, practice your presentations

Don't procrastinate...



and be confident.



Appendix

More Questions/Tips for Interviews

Phone Interview Questions:

- 1) Tell us about yourself: background, interests, research.
- 2) What do you see yourself doing in 5 years?
- 3) Why do you want to come to XX school?
- 4) What topic would you choose for a graduate research seminar?
- 5) What would you include on a course on XX for undergrad and graduate students?
- 6) How would you contribute to advising and mentoring students?
- 7) How do you think interacting with people in our department will influence your work?
- 8) What kind of interdisciplinary teams would you be interested in joining?
- 9) Is there anything more that you would like to tell us about yourself?

Skype Interview:

- 1) Make sure your skype is set up correctly and is stable
- 2) Use a good camera, and use it as a focal point
- 3) Think about what's behind you
- 4) Dress professionally
- 5) Don't put yourself in a weird physical position
- 6) Ensure the sound quality is good (including ambient noise)

More Questions/Tips for Interviews

Interview with Chair:

- 1) Ask about: teaching responsibilities, benefits, sabbaticals, campus service, committee membership, salary, start up packages, housing,
- 2) What kind of programs does the university have to support faculty and their families other than research facilities, etc?

Once you have a job offer:

- 1) Make a case for *why* you need more money for a salary, research, travel, moving expenses, etc. This makes it easier for the chair/head to convince the dean, or anyone above, to grant it to you.

What is your field/how do you see it changing in the next 5/10 yrs?

What was your role in the publications you have vs. what was your advisors role in writing/editing/response to reviewers/ have you ever fought a decision?

What have you found to be one of the most influential publications in your field lately /why?

More Questions/Tips for Interviews

What could you teach here?

Why is your research enduring?

What resources will you need to start your research program?

Future research plans: what directions do you see your research taking in the next 5/10 years?

What will be the topic of your first major research proposal as a new faculty member, and where will you submit it? What balance do you anticipate between field research and lab/office based research? If field work will be important, what field sites would you want to consider in the first few years?

Education: Given our curriculum needs within the X group, how will you contribute to the undergraduate and graduate curricula? In particular, what graduate course(s) what you like to teach, and what will be your basic teaching model (e.g. lecture, lecture + lab, discussion, etc)?

More Questions/Tips for Interviews

Graduate and undergraduate research: How will you engage graduate and undergraduate students in your research program? That is, what style of advising/mentoring will you use?

Resources: What critical resources do you need in order to establish a successful research program? What critical resources may already be here? What kind of help would you want from the X group, the Department, and the University for you to achieve your goals?

What are your professional goals?

What would you expect from this department and administration?

What experiences or interests do you have in college-wide activities and service?

Why would you want to come here?

What do you contribution to the department that is not already well covered by the faculty?

With whom in the department do you envision interacting the most? Outside the department?

More Questions/Tips for Interviews

What do you envision as your ideal lab: # grads, undergrads, postdocs, techs, participation of grads who are not your own students?

How would you respond to a student who is floundering (early vs. late)?

What types of mentoring have you experienced and what would you do similarly or differently?

Miscellaneous Tips

Have questions

Ask questions that imply that you want to go there

Mentoring/Guidance for students: depends on the student, how much help they need

Be an advocate for your student, support them

Ask a clarifying question after a short response: “did I answer your question?”

Use less conditional statements, come off as more confident

NOT: “I would probably...”

INSTEAD: “I will do...”