Academic Career in the US

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Frontiers and Careers in Nuclear and Hadronic Physics

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THE GEORGE WASHINGTON UNIVERSITY

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In my day

- In the days of mandatory retirement
- In the days when the Manhattan Project crew was retiring or dying off (poor health habits)
- In my fourth year of grad school at CUA
  - Zero applications sent out
  - Four invitations for interviews
  - Two postdoc offers
  - One research faculty offer at twice the salary
- In my fourth year as research faculty at UCLA
  - Zero applications sent out
  - Two invitations for tenure track interviews
  - Two offers (Stanford – GWU)
  - Been at GWU for 40+ years

More recently - Axel Schmidt's experience (with his permission)

2016–2017: 3 applications

- 3 direct rejections

2017–2018: 11 applications

- 10 direct rejections
- 1 shortlist → rejection

2018–2019: 5 applications

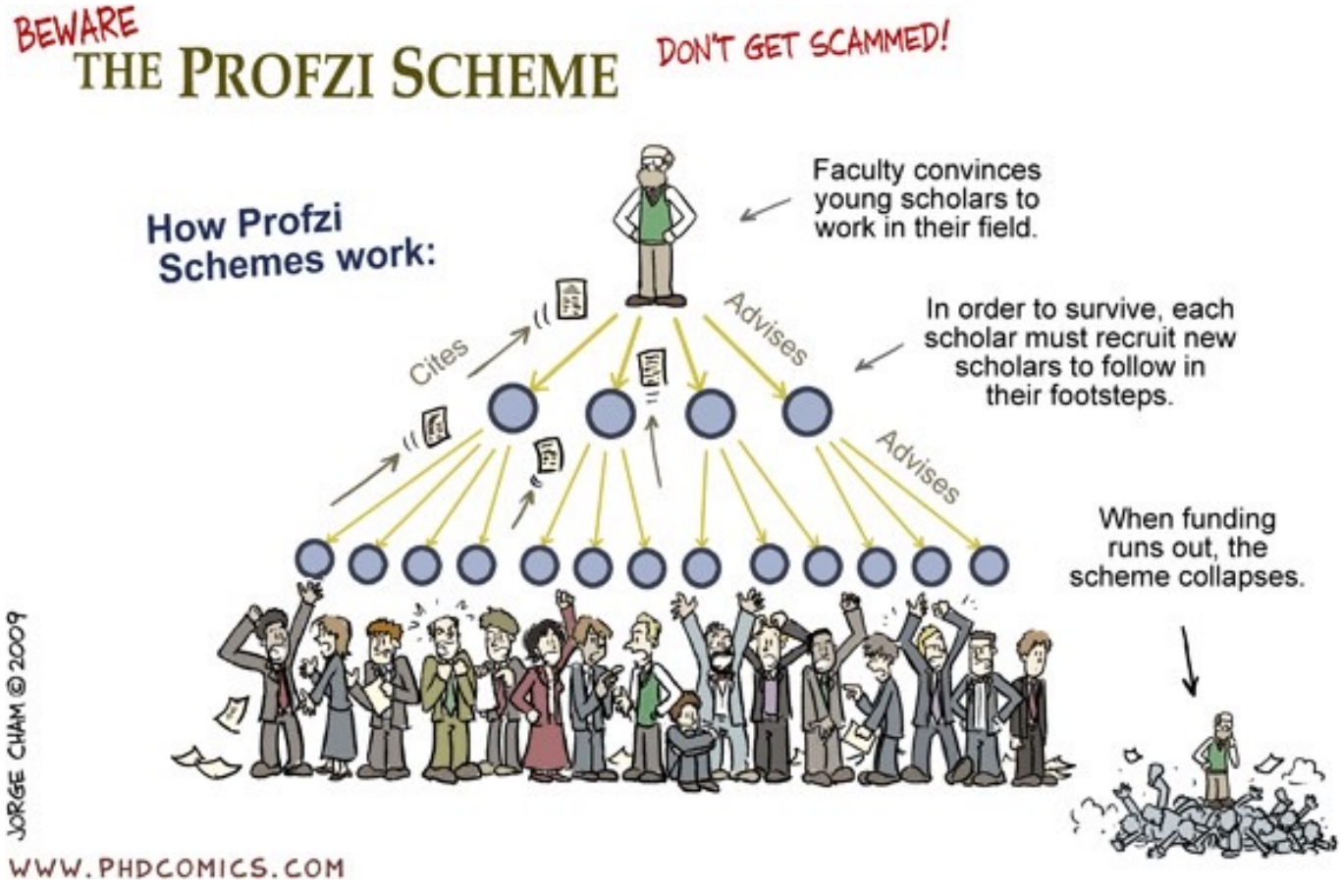
- 3 direct rejections
- 2 shortlists → offers

Make your postdoc count!

- High-impact results
- Rapid timeline
- Publications in major journals

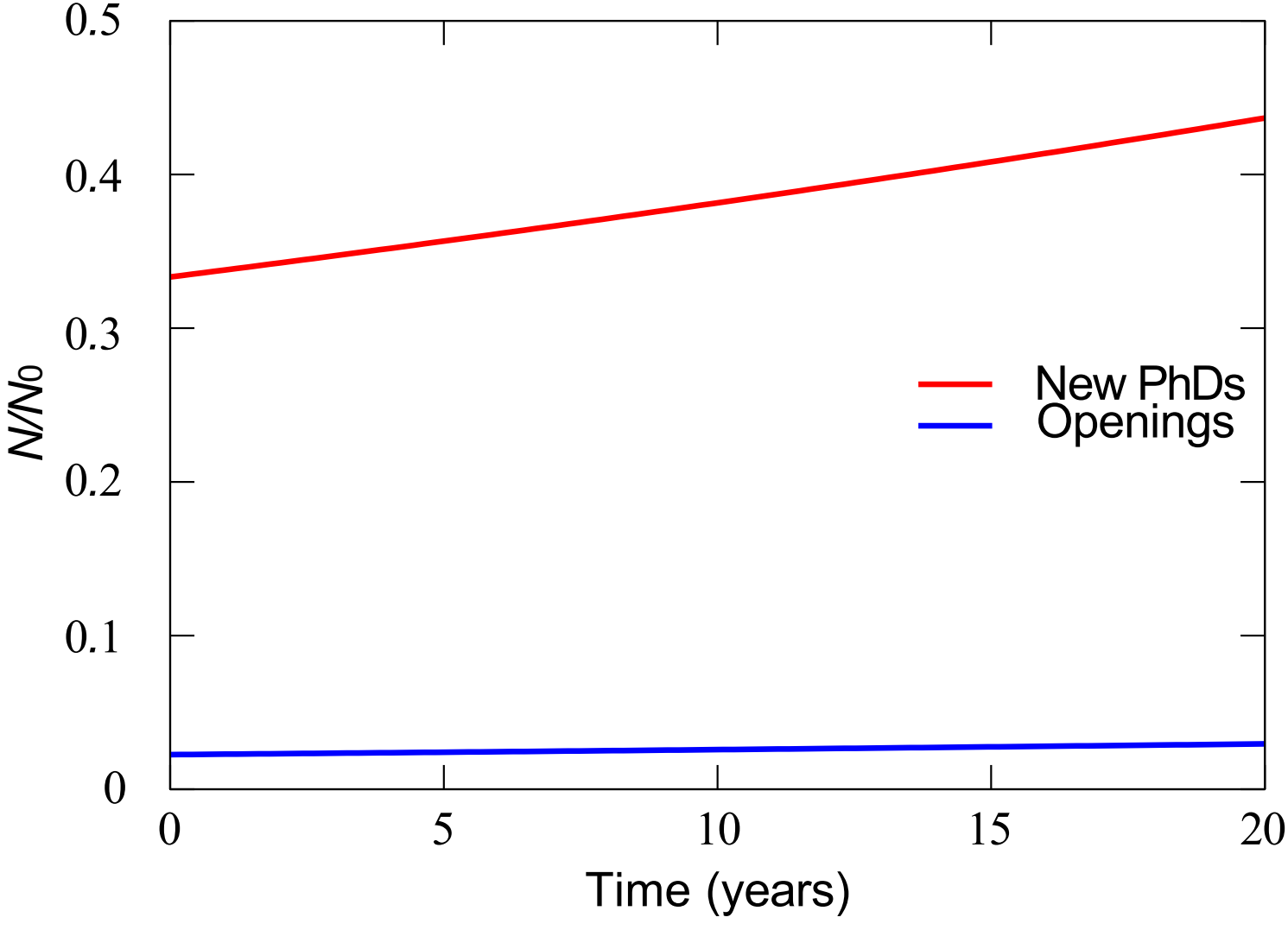
Fun, exciting, but highly speculative research is a poor strategy.

Today Academic physics is like a Ponzi scheme. (according to Axel Schmidt)

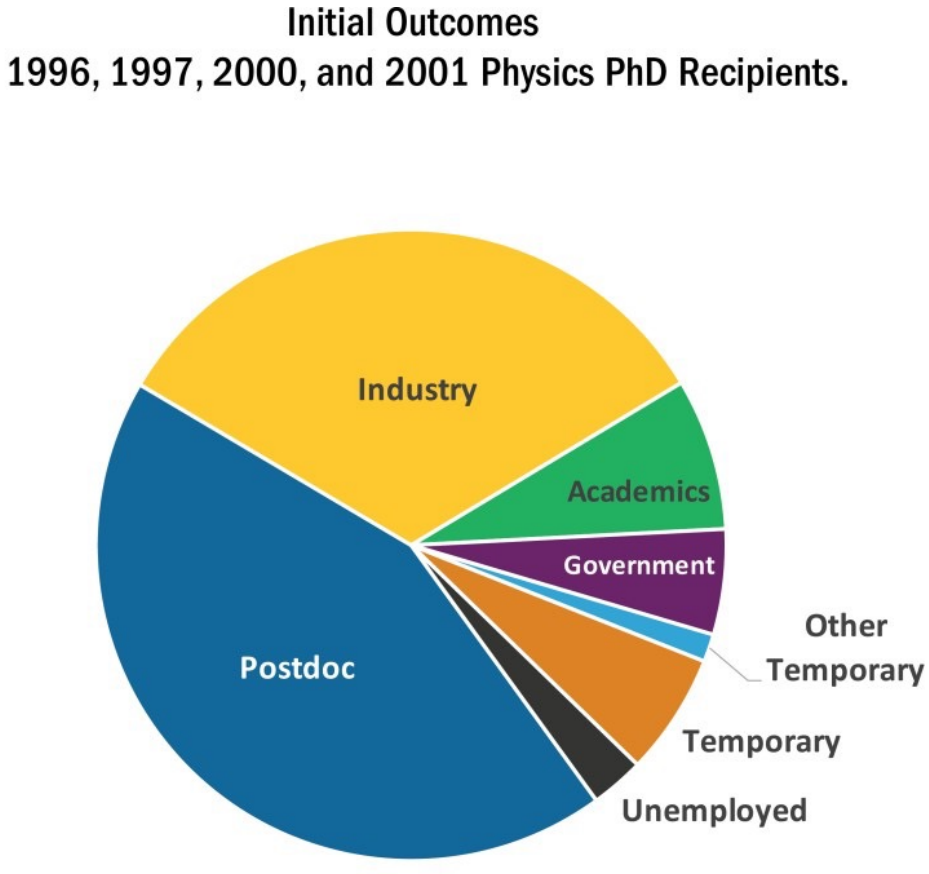


1500 new physics PhDs / year, faculty turnover is < 300/year
https://www.aip.org/statistics

Using Alex's back of the envelope guesstimate of expansion/replacement, the supply of recenr PhDs outweighs the demand for new faculty



Where people go after their PhD



Think strategically about your academic career. (according to Axel Schmidt)

Bad reason to take a postdoc:

"I know I don't want to go into academia, but this postdoc is available."

Good reasons to take a postdoc:

"I know I want to become a professor."

"I'm not sure yet if I definitely want to become a professor, but I need some more research experience to decide."

During your postdoc time:

Prioritize high-impact, short-time line results.

Apply early, apply often.

Know how long you'd be willing to stay a postdoc.

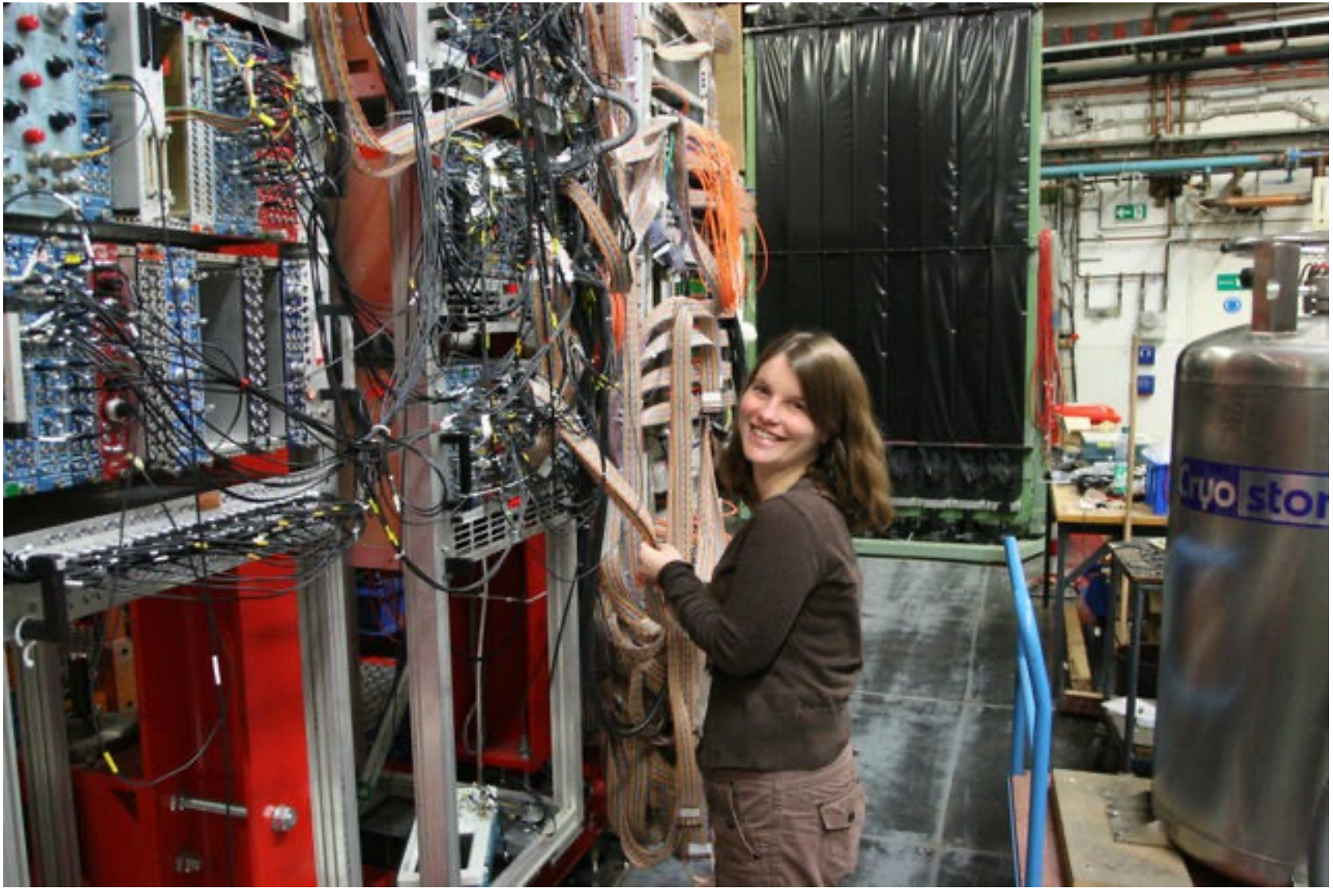
If you want to be a professor nowadays, remember two things!

- Absence does not make the heart grow fonder
- Familiarity does not breed contempt

What does this mean?

- You need to be visible whether you are a grad students or a postdoc.
- You need to be on the author list of papers, proposals and reports, not just acknowledged.
- You need to make presentations at conferences, meetings, workshops, and collaboration events.
- Take the minutes at you group meetings.
- You need your professors talking you up.
- You need to be in every picture

And it helps to be doing physics in the picture



But it could also be physics related - SPS

How do I do this?

- Open your mouth and speak up within you own research group and any collaborations to which you belong.
- Make comments and suggestions on all drafts being passed around.
- Submit abstracts to meetings and make sure you are the one presenting your work.
- Ask questions.
- Be aggressive but not annoying!

How do expand beyond my own group and collaborations

- Do service work at the university or lab that is helpful to others.
- Write data acquisition and analysis software
- Join committees
- Volunteer to organize the next Frontiers and Careers Workshop.
- Get involved!
- Be a mentor to other students!

Advice from Axel Schmidt

Work on your web presence

- Get a LinkedIn profile and *post*
- Update your github profile and showcase your coolest projects

Prepare your resume

- A very concise 1-page document presenting your competencies
- Purpose is to *get you an interview*

Decide where to aim

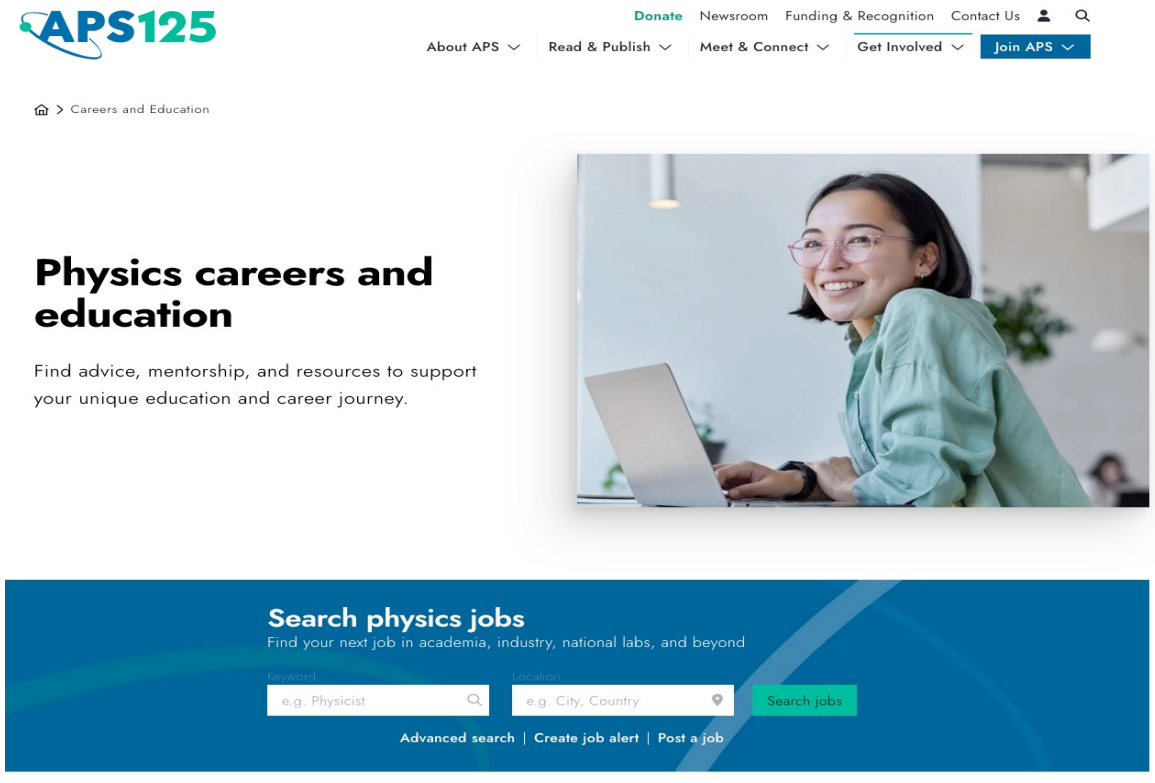
- Only you know what kind of work makes you happy
- Research your options

Talk to people

- Build your network
- Ask questions, *learn!*

Where to start?

www.aps.org/careers



- Job board
- Advice on how to apply
- Webinars, resources

Where to start?

www.aps.org/careers

Start with a solid foundation

Why Study Physics?

Physics teaches foundational lessons about the natural world with useful applications for many careers.

Put together an effective physics resume

An effective resume is often the key to getting that initial interview with an employer.

Take a Skills Inventory

Build your resume and prepare for interviews by taking stock of your hard and soft skills.

Chart your physics career path

Career Navigator

Discover your path to career success, your comprehensive companion offering valuable insights, practical tools, and personalized guidance.

Careers Guide 2024

A guide to the breadth of opportunities for physics graduates in industry, national labs, and beyond — including guidance to land those jobs.

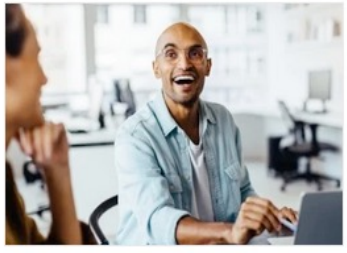
Student Resources

Physics is vast, but exploring it as a career doesn't have to be overwhelming. These resources can help you learn about physics careers and support you on your educational journey.

Where to start?

www.aps.org/careers

Explore career options



Career Options for Physicists

Studying physics opens up your future to a range of career paths. You can do almost anything with a physics background!

Physicist Profiles

Discover how much you can do with a degree in physics by seeing how others have put theirs to use.

Webinar Library

Get involved, advance your career, and explore important topics for the physics community.

Mentoring Programs and Resources

Resources for mentors and mentees to make the most of a physics mentoring relationship.

APS resources

Career statistical data

Explore the numbers behind a career in physics, including salary figures and employment statistics.

Committee on Careers and Professional Development

This committee coordinates and advises our work related to career and professional development in physics.

International employment

We help students and professionals from around the world navigate employment, education, and collaboration in the U.S.

Mentoring Programs and Resources

Resources for mentors and mentees to make the most of a physics mentoring relationship.

Faculty Application

Everyone asks for:

- Cover letter
- 3+ Good letters of recommendation
- CV + Publication list or link to online listing
- Research statement
- Teaching statement – undergraduate!

You might additionally be asked for:

- Service statement
- Diversity statement
- Proposal for a new course – undergraduate!

What happens after you apply?

- You should get an acknowledgement, if not email or call – your application may have gone to the wrong place. Some/most universities now require that your application go through their human resources office, not directly to the search committee.
- Three usual responses:
  - Thanks, but no thanks
  - Thanks, we will let you know
  - Thanks, can we set up a Zoom meeting – this is usually an indication that you are on the short list
- Zoom meeting are usually with the search committee and usually probe for details in a friendly and professional manner.
- At this point you wait…..

Now what happens?

- The search committee at this point goes back to the whole department and the dean's office to present who they think are the best candidates. This usually gets into the realm of politics and budgetary concerns.

- The department suggest to the dean that they want to bring in X candidates to interview and the dean usually suggests Z = X – Y.

- If you are lucky, the search committee chair will invite you for an on-campus interview.

- You now need to start asking for details as to what the interview involves – get as much information as possible – good to have a spy/contact!

How do I prepare for the interview?

- Find out with whom you will be meeting – faculty and deans
    - You will be meeting with faculty from your area of expertise.
    - You will be meeting with faculty outside your area of expertise.
    - The dean with whom you speak may or may not be a scientist/mathematician.
- Go on the university web site and learn about the people with whom you may speak – it impresses people if you seem to know something about them and their interests.
- Remember, you are also interviewing them!

How do I prepare for the interview?

- You need to prepare a seminar or colloquium.
- You may also be asked to prepare a sample lesson.
- Not everyone in the audience will be a physicist or even a scientist, mathematician or engineer.
- Keep it simple and do not use specialized jargon.
- To be safe, you should have a pdf version of your presentation ready – just in case you have to upload to their local system.

Things to watch out for during interview

- Dress professionally – Act professionally
- Have your elevator talk ready – this is very useful if you are meeting with students and postdocs.
- Read the room and act accordingly.
  - Some people might not offer a hand to shake, but if the hand goes out don't leave them hanging.
  - Even if you know people well in the group, no hugs etc.
- Do not get drawn into any local politics.
- Follow APS meeting guidelines and you will keep out of trouble.
- If they take you to dinner, do not go out of bounds on food or drink.

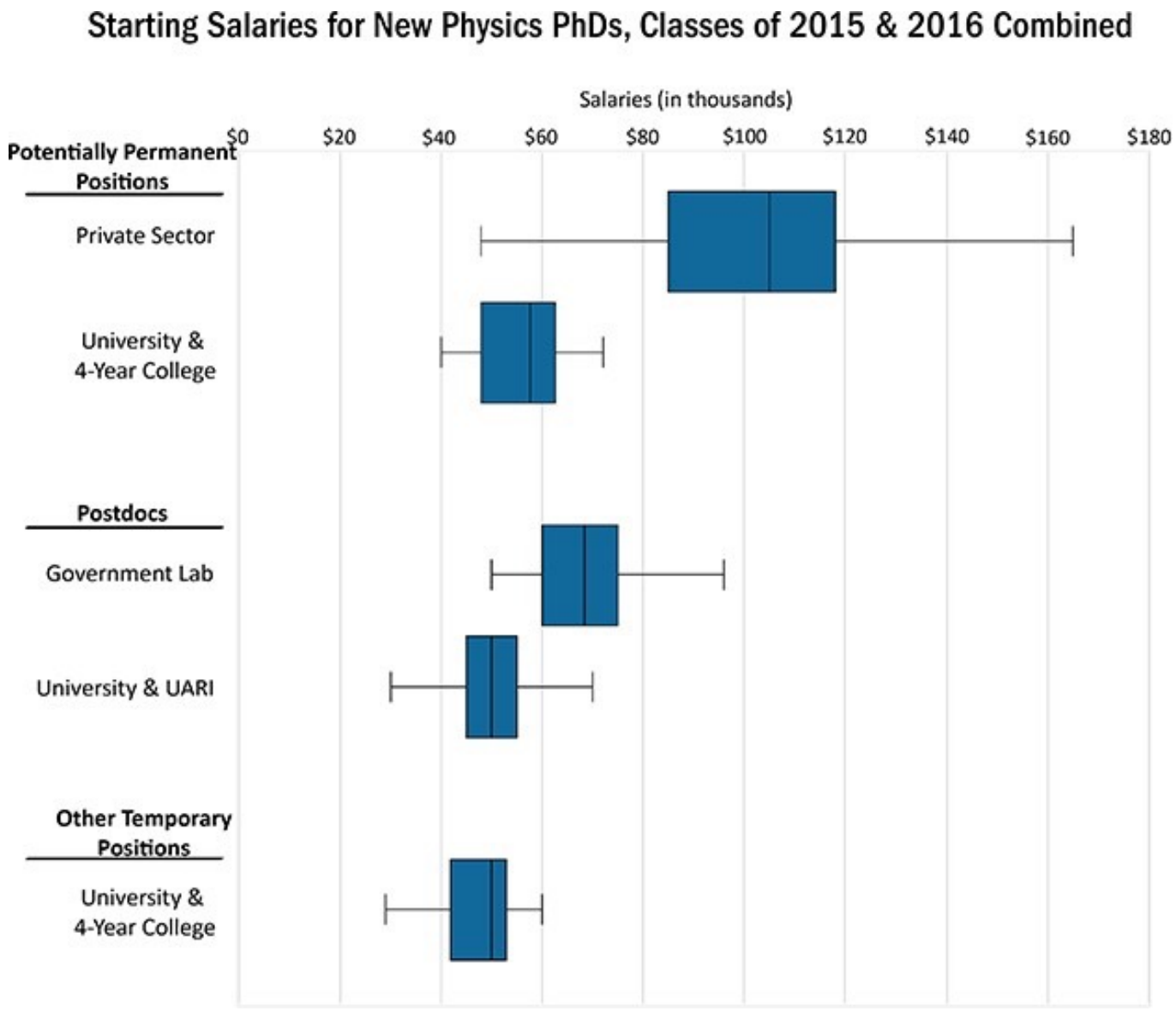
What do you do after the interview?

- Prepare for your next interview.
- You will usually be told an estimate of the timeline they are under.
- Don’t call them, they will call you.
- Just keep on doing your thing.
- Exception – if you are made an offer from another university, you can call other places to find out where they are, especially if you would prefer them over the first offer.
- Once you have one offer, you are in charge!

What if they make you an offer?

- Negotiate, negotiate, negotiate
- Starting salary – you will be offered a 9-month salary – it may be lower than your current 12-month postdoc salary.
- Startup considerations.
  - Summer salary for first year or so.
  - Teaching load – reduced during first year(s).
  - Student and/or postdoc support
  - Laptop, PC or workstation.
  - Travel money
  - Experimentalists usually get equipment money.
- Check out employee benefit packages!

Starting salaries



When do I take the offer

- Once you accept the offer negotiations stop!
- Seek advice from:
  - Your current supervisor
  - Your PhD advisor
  - Your contacts at the university
- Contact other places at which you interviewed and tell then you need their decision asap; if they really want you, they will respond quickly or urge you to give them more time to react.
- People talk, the rumor mill is active – they probably know already.
- Do not accept too quickly, but do not string people along.

After I accept

- Tell your current supervisor – give proper notice.
- Finish up your work and try to get things ready for publication – analysis reports, drafts etc – do not leave people hanging with incomplete work.
- Your will be told the formalities of the hiring process – these differ, but there be loads of paperwork and training.
- Prepare for move – you did ask about moving expenses, did you think of that?
- You are one of the lucky ones and now all you must worry about is getting tenure!
- That is another talk!