

Preparing for the Academic Job Market

Tips I learned from our University
of Maryland faculty search(es)

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Outline

- what do departments look for?
- how to get the most from your postdoc
- marketing yourself to academia
- when to look elsewhere

Also

- what to look for in a postdoc position

My personal background/caveats

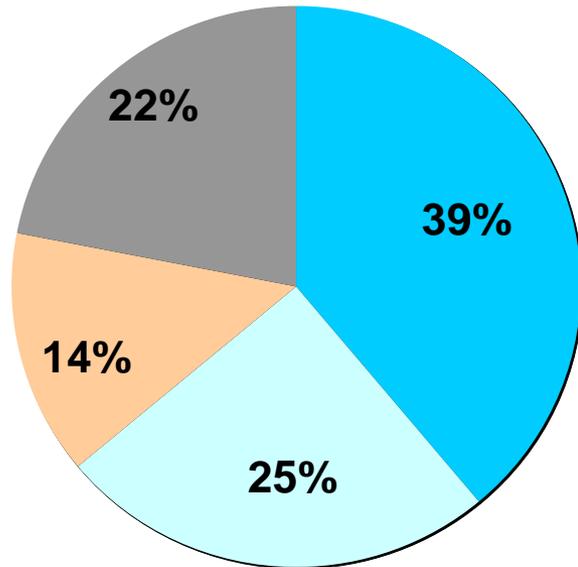
- B.A. small college (no research experience)
- Ph.D. @ “top 10” research university w/ on-site lab
- postdoc at private university in a well-funded group (not at lab)
- prof (since 1993) in large public research university with large (70 faculty) and diverse physics dept
 - a small fraction is nuclear physics
 - competition between fields for hiring
 - teaching load low, but teaching to nonscientists likely

*you might get a different perspective from someone else
→ seek it out!*

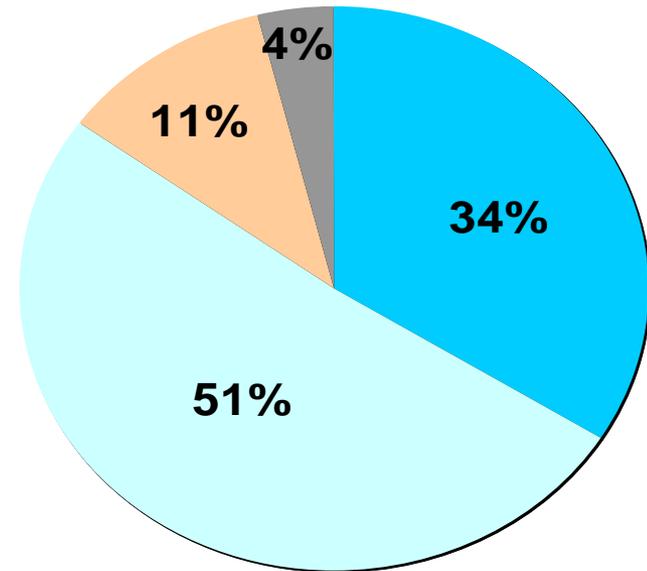
resources

- NSAC Education subcommittee report
http://www.sc.doe.gov/np/nsac/docs/NSAC_CR_education_report_final.pdf
- “Making the Right Moves” (scientific management)
http://www.hhmi.org/grants/office/graduate/lab_book.html
- CV preparation:
<http://chronicle.com/jobs/tools/cvdoctor/03.htm>
- General: <http://chronicle.com/jobs/>
- Look on the web for other resources (there are lots!)
- Seek out advice from senior colleagues

Career plans: current nuclear science graduate students & postdocs



Current graduate students



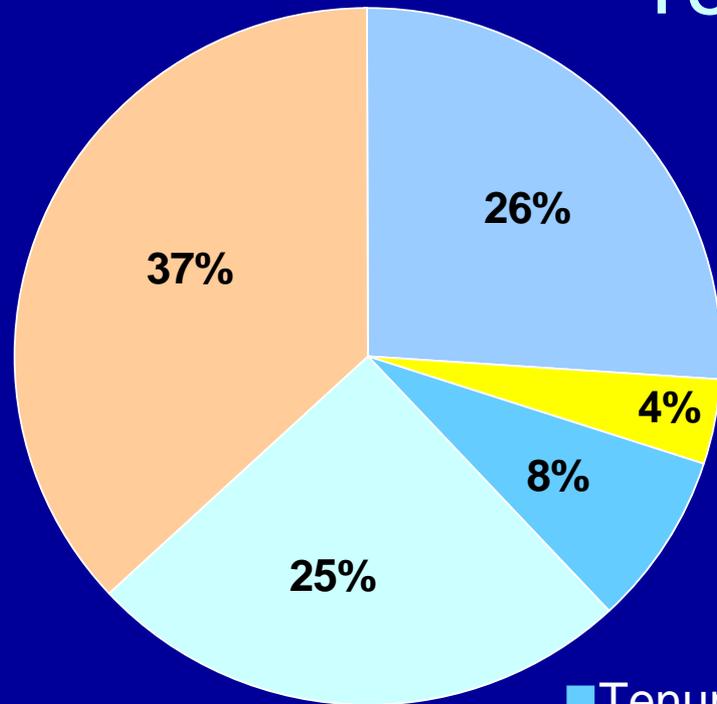
Current postdocs

- Tenure track Faculty
- Researcher
- Business, government or non-profit
- Undecided

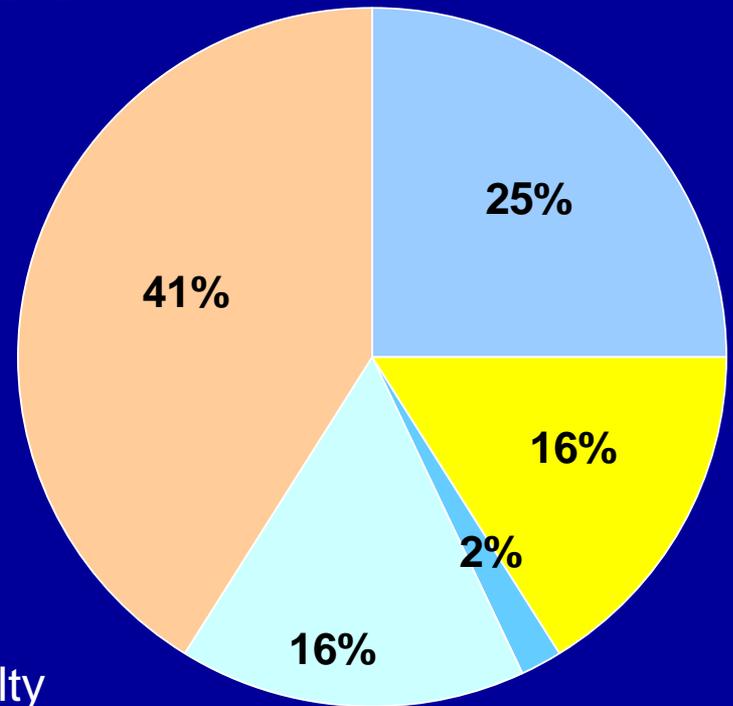
Slide from J. Cizewski, Rutgers University

Source: Graduate Student & Postdoc Surveys, C. Beausang, T. Hallman, et al.

Current positions nuclear science PhDs, 1992-1998



Current positions
Experimentalists



Current positions
Theorists

- Tenure track Faculty
- Non-tenure track Faculty
- Other Acad/Nat. Lab
- Researcher
- Business, government or non-profits

Slide from J. Cizewski, Rutgers University

Source: Nuclear Science PhD 5-10 Years Later Survey, J. Cerny et al.

Typical Academic Life

- 50/30/20: Research/Teaching/Committees
 - teaching load higher at non-PhD granting schools
- write grant/research proposals
- recruit and advise students
- teach science to nonscientists
- department governance
 - hiring priorities, curriculum, advising/mentoring
- university-wide committees
- write more grant proposals
- manage budgets and people (and sometimes projects)

What do departments look for?

- fundability
 - sometimes means popular field
- high likelihood of tenure
 - will you have a new physics result to talk about within 3-5 years?
- leadership/
 - can you manage other people?
- collegiality
 - can you work with other faculty?
- good communication skills (teaching potential)
- flexibility
 - are you prepared to change directions when funding directions change?

Getting the most from your postdoc

- Round out your experience
 - (lab vs university, hardware vs software, etc.)
- Take on a position of responsibility on a running experiment (spokesperson is only one of many ways of leadership)
- Look for opportunities to mentor students
- Earn the respect of visible senior colleagues (who will write letters for you)
- Don't overstay your welcome! (3 years in one job is generally enough)
- be sure your work is getting published

Marketing yourself

- volunteer to give briefings at collaboration meetings
- Look for opportunities to give talks
- Go to a major conference per year (at most 2?)
- Keep a current professional web page with your own work
- talk to your supervisor annually about your progress/potential

What goes in your application

- letter of introduction
 - 1 page max, indicate who will be letter-writers
- CV (include letter-writers here too)
- Research statement (see next)
 - should include both past and future
- Teaching statement
 - experience not essential, but highlight it if you have some
 - should have a “teaching philosophy”

Research statement

- Have 2 “visions”
 - short term (3-5 yrs): will get results in 5 years
 - long term (5-10 yrs): exciting, visionary, can be speculative (doesn't have to be exactly what you do)
- Highlight where you've been a leader (how will you make your new university a “player”)
- Be (somewhat) specific about how you plan to get students involved (on campus is good if possible)
- Do some background on where you are applying
 - What is the department looking for? What new dimension would you bring?

the interview

- Get lucky! but be opportunistic (and open-minded)
- Get a copy of your interview schedule in advance and do some research on who you will meet
- Know your strengths and tell people about them (but don't be arrogant!)
- know your audience (they're probably not working at JLab!)
- Have a teaching philosophy
 - graduate quantum mechanics? NO!
 - freshman nonmajor physics? YES!
- See this link by P. Beuning: "Preparing for Academic Job Interviews"

<http://web.mit.edu/career/www/graduate/academiccareers.html>

typical interview schedule

- ½ hour interviews w/many faculty
- seminar
- teaching interview
- meet w/ department chair
- sometimes meet w/Dean or administrator
- sometimes meet w/ groups of students

Prepare:

- prepare 1-2 minute summary of your research
- ditto for teaching experience/interest
- brief yourself on research interests of faculty you will meet: show interest and look for areas of overlap
- think about what lab space/resources you might want
- Be positive!

What also happens (out of your control)

- Department politics
- Demographics
- fashion trends in physics
- resources

Finding a good postdoc

- Get out of graduate school as quickly as possible
- Don't be afraid to change
 - experimental Halls at a minimum!
 - experimental subfields
 - experimental fields
- Name brands count (perhaps more than they should)
- Laboratory vs University tradeoffs

addt'l Web resources I found for this talk

Jonathan Danzig, UIUC Mechanical Engineering Dept.

"Landing an Academic Job"

http://quattro.me.uiuc.edu/~jon/ACAJOB/Latex2e/academic_job.pdf

APS Careers in Physics web site

<http://www.aps.org/jobs/index.cfm>

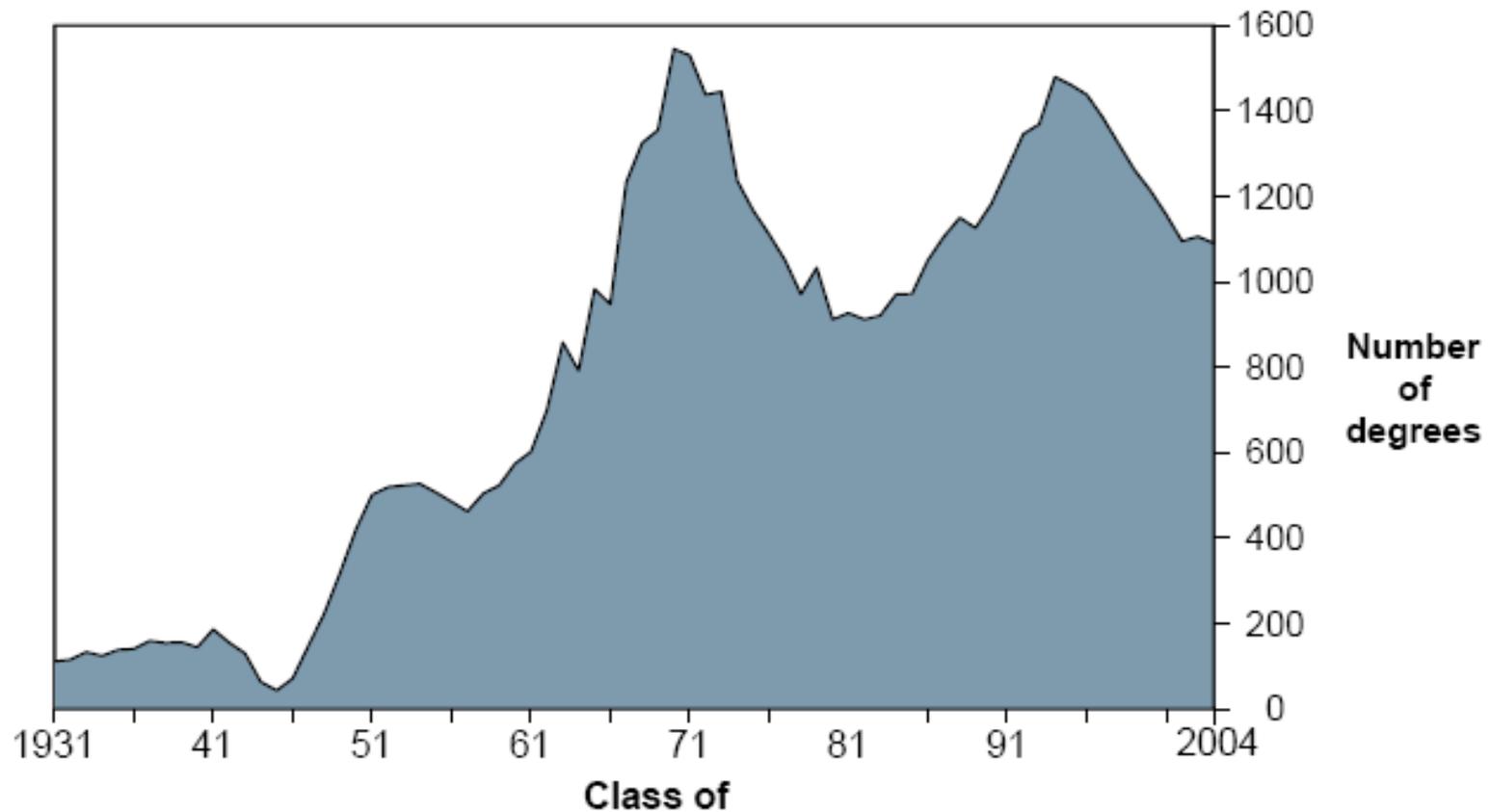
<http://www.phds.org/jobs/>

Berkeley Physics and Astronomy Job Hunting Resources

<http://cosmology.berkeley.edu/jobs/jobover.html>

Supplementary

Number of physics PhDs conferred in the United States, 1931 to 2004.



Sources: NAS (1931-1961), AIP (1962-2004)
Statistical Research Center, Enrollments and Degrees Report.

R. Czujko, AIP, presentation at APS March 2006 meeting, Baltimore, MD

1st Year Students Entering Graduate Physics Programs

| Academic Year | Foreign N | U.S. citiz. N |
|---------------|--------------|------------------|
| Fall 2004 | 1292 | 1746 |
| Fall 2003 | 1481 | 1697 |
| Fall 2002 | 1339 | 1535 |
| Fall 2001 | 1434 | 1343 |
| Fall 2000 | 1485 | 1228 |
| Fall 1999 | 1328 | 1182 |
| Fall 1998 | 1251 | 1166 |

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Employer Type by Year of PhD, 2001

| PhD Year | Industry % | Academe % | Gov't, Non-Profit, Hospital |
|---------------------|-----------------------|----------------------|--|
| | | | % |
| 1996-2000 | 46 | 40 | 13 |
| 1991-1995 | 54 | 30 | 15 |
| 1986-1990 | 41 | 36 | 21 |
| 1981-1985 | 47 | 34 | 18 |
| 1976-1980 | 46 | 28 | 26 |
| 1971-1975 | 45 | 31 | 23 |
| 1970 & earlier | 37 | 44 | 18 |

Source: NSF Survey of Doctoral Recipients

R. Czujko, AIP, presentation at APS March 2006 meeting, Baltimore, MD