

Climate Observations

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Up to the Ph.D.

- Undergraduate at UC Berkeley - 1997
- Graduate at SUNY Stony Brook (advisor Louis DiMauro) - 2003
- Post Doc at APS (based at SLAC – SPPS)-2006 collaboration)
- Hired part time at Xradia in 2006
- Stayed at Xradia full time - Present

Graduate School

- Very self directed graduate student.
- Ph.D. is not for assembling wire chambers
- Most of the professors that I liked, had large groups. I extended my search to scientists at Brookhaven National Lab where I found my perfect advisor. Even today, I still admire him
- Before starting with my thesis work I decided to go to do a semester abroad to Germany
- I returned to the group and started the research as planned
- My AGEP fellowship paid for me to go to several conferences. Plus I also got funding from conference organizers to attend (GORDON conferences, OSA, APS)
- GOOD IDEA, bad implementation – BE PART OF A GROUP

Postdoc Experience

- Post Doc experience doing laser/xray pump/probe experiments
 - SPPS collaboration at SLAC
 - Edge of research. New kind of light available, short flash (100fs) of bright Xrays. Obvious things to try. Who gets to do it?
 - Linda Young's group at APS
 - Group of extremely wise science experts

Characteristics of Research at a Natl. Lab

- False: You can research whatever you want
- True: You can research whatever you get funding for. Politics and connections are important!
- False: Research ideas are unique
- True: In a large proportion, research topics (and methods) follow logically from previous results

Characteristics of Research in Industry

- Your research is linked to whatever makes your product better (brings in \$\$\$). Politics is less involved – connections are secondary.
- Many times you are ‘re-inventing’ the wheel because people are not aware of other’s research since they might not have access to existing literature
- Makes you look like a genius when you use knowledge that is standard in your field
- You don’t get to write your own papers often (but you might work in novel instruments that get prizes or on patents)

How are things in Industry? 1

- I've only worked in one company: Xradia
- ~ 60 people, 8 Ph.Ds
- Manufacture x-ray microscopes 2 kinds: micrometer (lots of competitors) and nanometer resolution (no competitors)
- Grant to improve throughput and imaging speed

How are things in Industry? 2

- Large growth, two small shrinks, now growing again.
- Many of the challenges are the same (probably because it is heavily based on engineers and Ph.D. physicists)
- Degree seems to count for more than at a lab. It is part of the proof that you are competent – GET YOUR PH.D.s!
- They have more self checks and a harder time justifying un-equal pay

Small differences Research vs Industry

- Look at me
- Hello, gesundheit!
- Invitations to speak are more prestigious

Where is higher likelihood of a friendly environment?

- Research groups/Companies with a large proportion of female scientists (large or small). Do you know any?
- Even if there isn't a large number, if they can produce a couple of females that are successful and would speak positively about their experience

Conclusion

- Don't ever use the words 'I got lucky'
- Why not request female references?
- We still need to follow the rules of the game (from 'How men think')
 - Act competent
 - Act strong
 - Keep playing to win even when the game is no longer fun
 - Don't get emotionally involved while playing the game
 - Being aggressive is part of the game
 - Fighting is part of the game
 - You are part of a team
- Climate change is un-avoidable – you can speed it up

Thanks!

- Sue Otwell
- CSWP
- FIAP
- APS
- And you for coming so early!