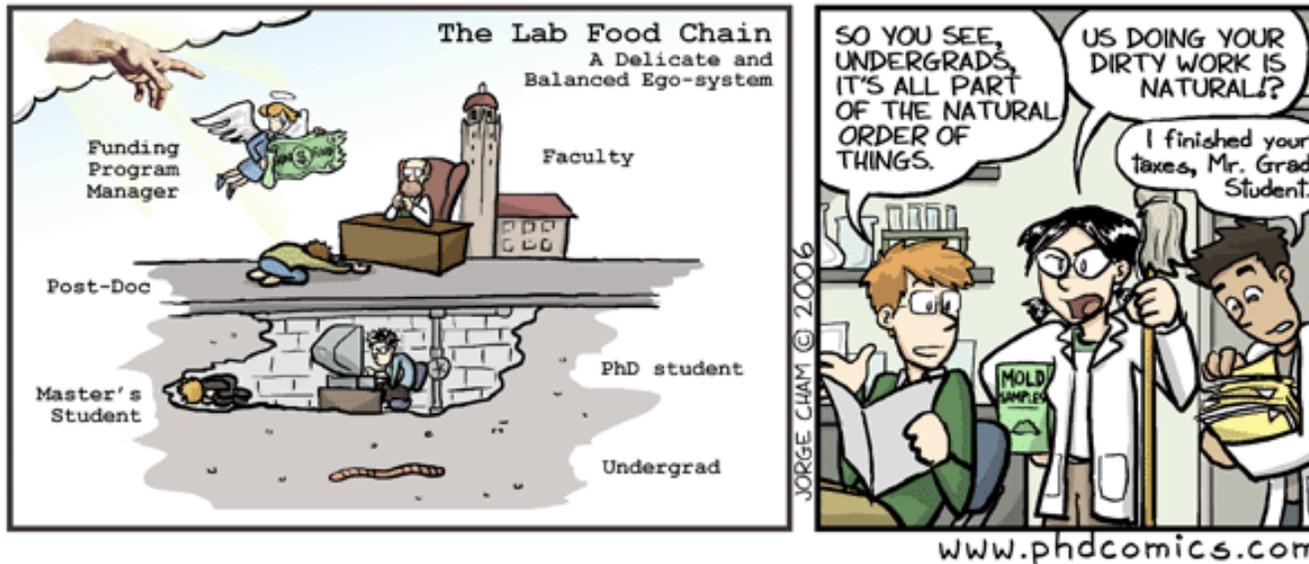


# Going into Academia (and never leaving)



Zach Kohley  
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Assistant Professor  
National Superconducting Cyclotron Laboratory  
Department of Chemistry  
Michigan State University, E. Lansing, MI

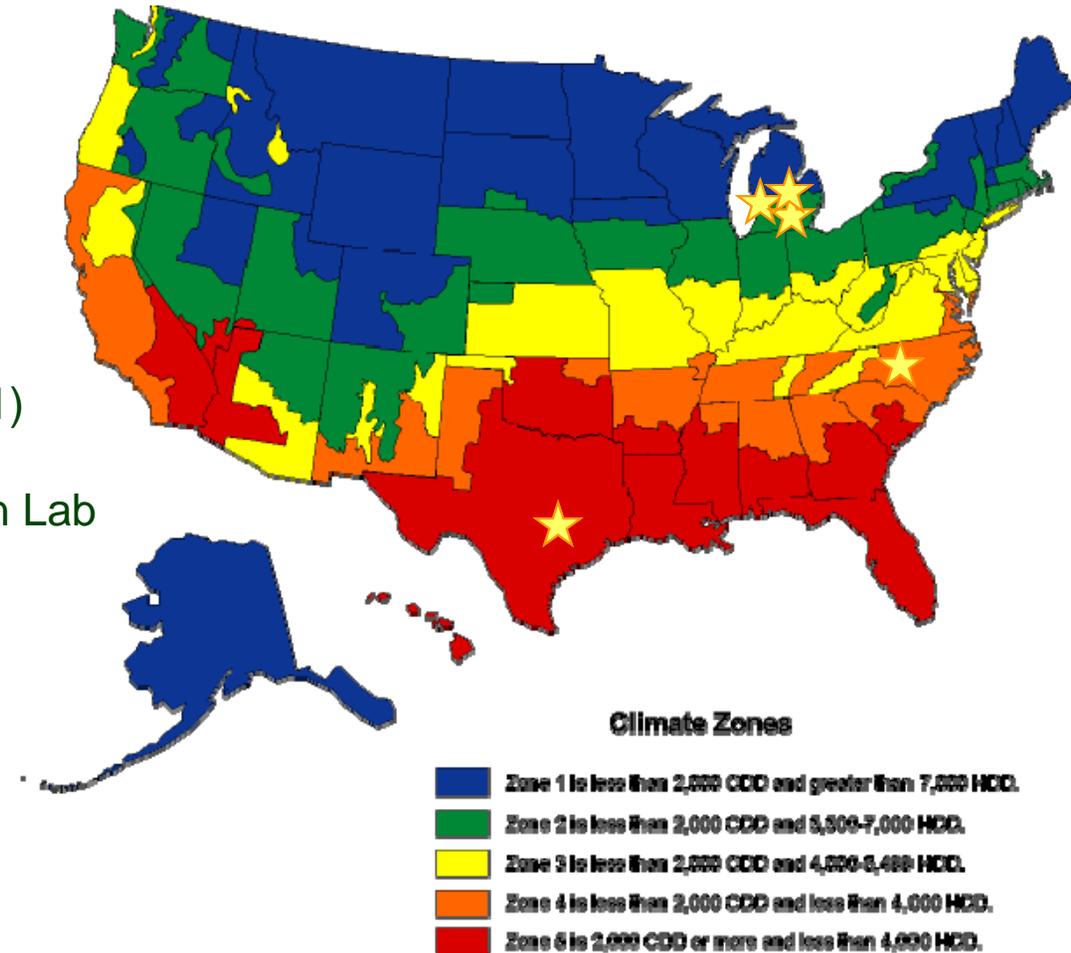
Texas A&M REU Career Day  
July 17, 2013

# Outline

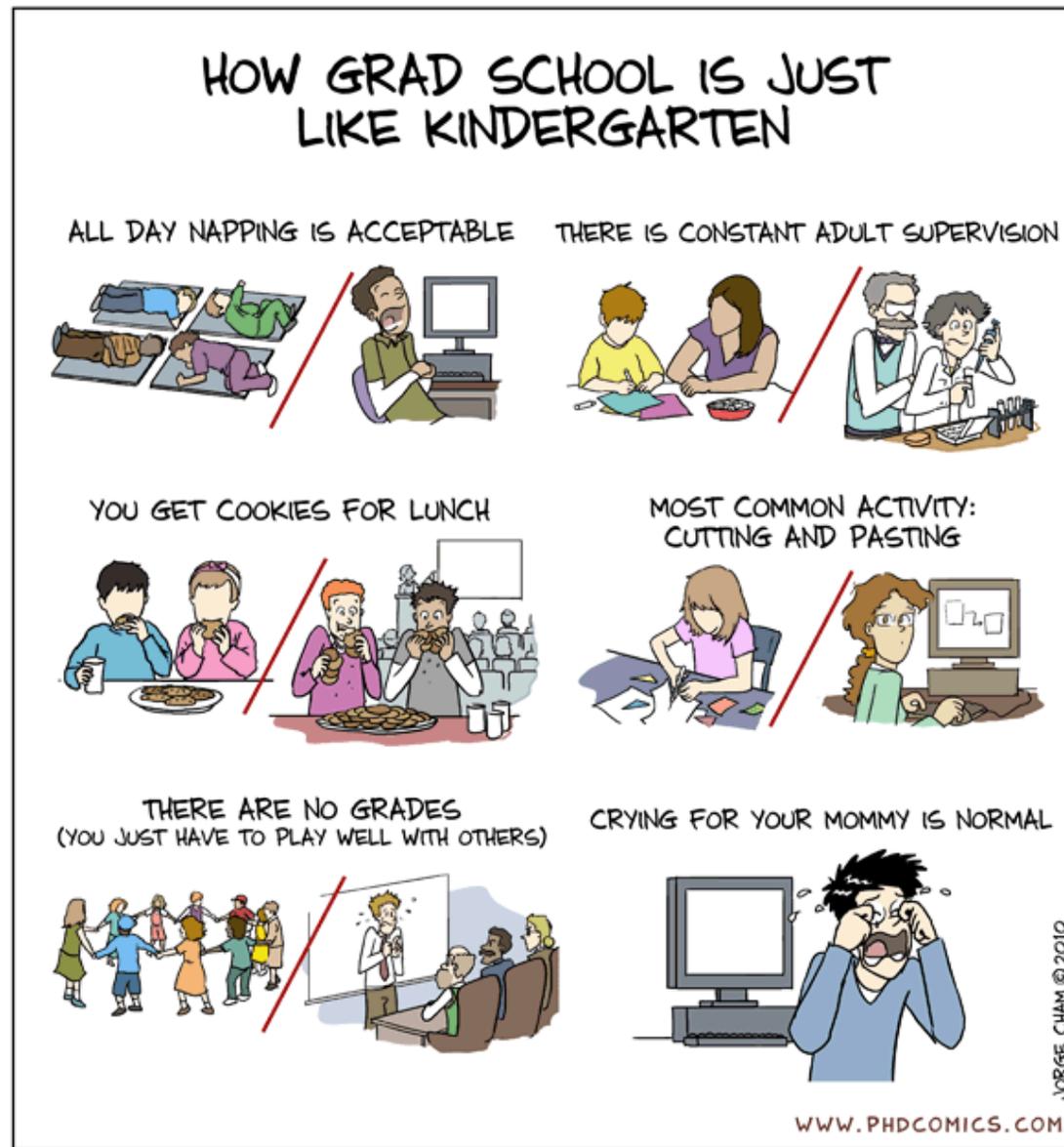
- Background about me
- Graduate School
- Post-doc(s)
- Faculty

# Background

- Born in Michigan (1984)
- Undergraduate at Hillsdale College (2002-2006)
  - B.S. Chemistry
- Nuclear Chemistry Summer School (2005)
- Graduate School at TAMU (2006-2010)
  - Ph.D in Nuclear Chemistry
- Post-doc at Oak Ridge National Lab (2010-2011)
- Post-doc at National Superconducting Cyclotron Lab (2011-2012)
- Joined Faculty at MSU/NSCL (2012 – present)



# Graduate School



# Is grad school a good choice for you?

- REU is a great experience to help answer this question:
  - Do you crave research/learning?
  - Check out the graduate students (are they sad, mad, or happy?)
- Grad. school can be like a rollercoaster
- Takes ~5 years to get your Ph.D
- What do you want to do in the future:
  - Graduate school = more independent research
- **YOU GET PAID TO GET A PH.D!!**



# Where to go?

- **MY OPINION:** Who you work for is more important than where you work
- Your graduate advisor in many ways defines your graduate school experience.
  - Over then next 4-5 years he/she is responsible for guiding you to a Ph.D.
- When applying for jobs/post-docs, people often will know your advisor. They probably don't care if you went Jim's 4H University if you worked *with* a famous or up-and-coming researcher.
- Find somewhere you will be happy (advisor, research, school, location, etc...).
- Visits: Grad. schools will often fly you out for a visit. Meet with advisor. **Talk to the students** in that advisor's group (get the scoop).
- [Personal Story Time: Choosing grad school]



# Succeeding in grad. school

- Motivation and consistently working hard!
  - Being really really smart? Not really (though it can help)
- Ask questions to everyone. Ask for help.
- READ literature articles.
- Treat graduate school like a job (*you are getting paid*).
  - Don't work from home...
- Stay focused on your thesis!

WHAT YOU THOUGHT YOU'D GET DONE THE NEXT DAY WHEN YOU WENT TO SLEEP THE NIGHT BEFORE:

8:00am	GET UP EARLY, WORK OUT.
9:00am	HAVE A FULL BREAKFAST, GET TO WORK ON TIME.
9:30am	RESPOND TO BACKLOG OF E-MAILS, FINISH READING PAPERS
10:00am	WORK ON THESIS PROJECT
12:00pm	LUNCH
1:00pm	HAVE A HAPPY AND PRODUCTIVE LIFE.

WHAT ACTUALLY HAPPENED:

8:00am	<del>GET UP EARLY, WORK OUT.</del>	] HIT THE SNOOZE BUTTON FOR THREE HOURS STRAIGHT
9:00am	<del>HAVE A FULL BREAKFAST, GET TO WORK ON TIME.</del>	
9:30am	<del>RESPOND TO BACKLOG OF E-MAILS, FINISH PAPERS</del>	
10:00am	<del>WORK ON THESIS PROJECT</del>	
12:00pm	LUNCH	
1:00pm	<del>HAVE A HAPPY AND PRODUCTIVE LIFE.</del>	

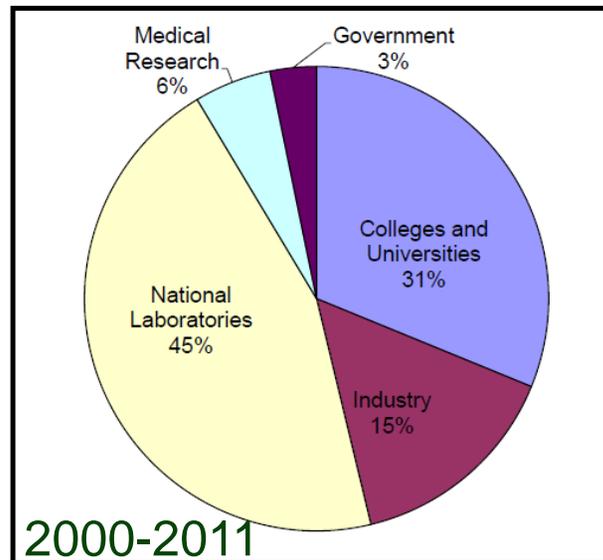
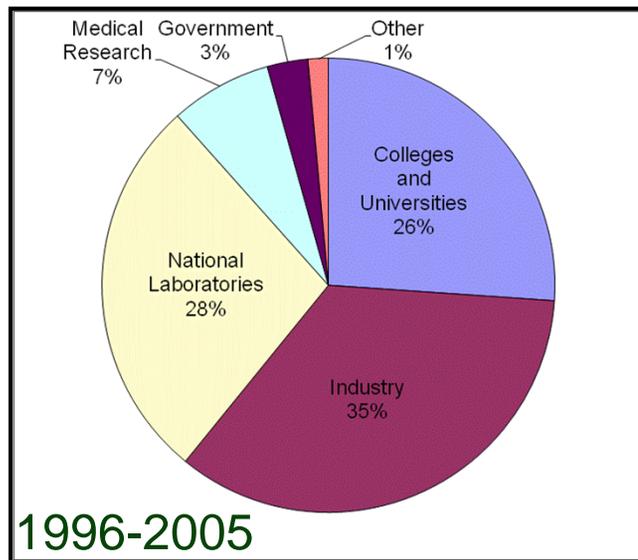
JORGE CHAM © 2010

WWW.PHDCOMICS.COM

# What do I do after grad. school?

- It is important to have an idea of what you want long-term as this will be important for deciding the next step.
- Start applying about ~6 months out from your Ph.D.
- 3 large areas to go into: Academia, Nat'l Labs, Industry

## Graduate students from NSCL



Most of the academic and national lab “jobs” were post-docs.

# Post-doc



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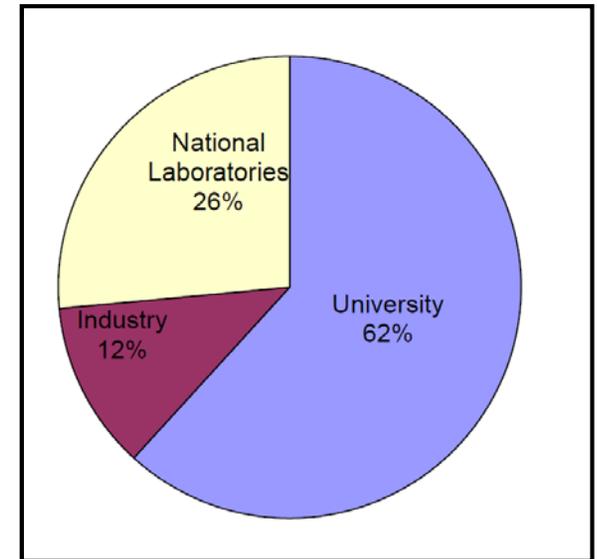
# What is a post-doc?

- After getting your Ph.D a common path is to take a post-doc.
- Post-docs at both universities and national labs.
- A test of your ability to be more **independent**
- May lead a project, detector construction, mentor students, etc...
- Post-doc *should* be temporary (2-3 years).
- In my experience being a post-doc **ROCKED!**
  - No classes, prelim exams, ect...
  - **Just research...**

# Should I do a post-doc?

- Depends on what you want to do:
  - Work at Nat'l lab: great entry point
  - Faculty at R1 research institute: yes!!
  - Faculty at undergraduate institute: ??
  - Industry: ??
- Works both ways, lab/university “test” you out and you can “test” them out.
- I originally thought I wanted to work at Nat'l lab but....

## Research Associates from NSCL



# Advice on post-doc

- (Repeat) Choose your advisor very carefully! They define your post-doc.
- Along with advisor, ask about what your project will be:
  - Building a detector
  - Analyzing data
  - Coding
- (My opinion) Try something new!
  - Symmetry energy, RIB fusion, nuclear structure at dripline
  - Meet new communities
- (Repeat): Work hard, stay motivated, stay focused.

# Faculty Position

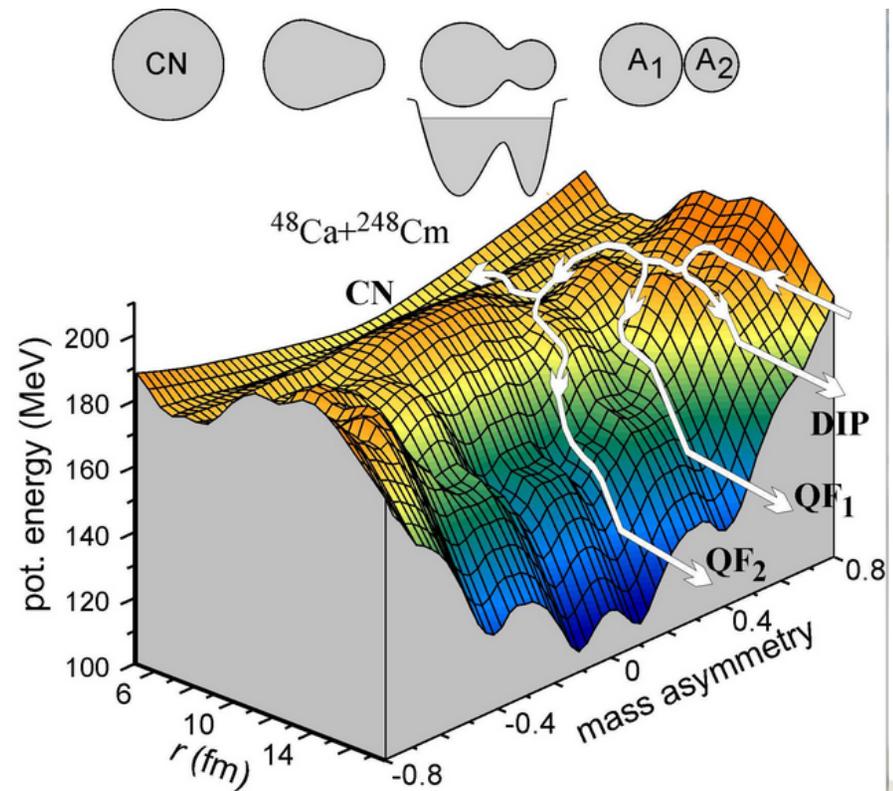
FOX TROT by Bill Amend



(If this sounds like you, maybe a faculty position is right)

# Why did I want a faculty position at R1 institute

- I love research.
- I wanted to do **my** research. I didn't want to be told what to study.
- I wanted to run my own research group. (In many ways your own boss)
- Research never felt like work.
- Mentoring graduate students
- Teaching



# What is life like?

- Busy!
- Mentoring graduate students, teaching, starting research program, committees.
- Funding
- Traveling
- Family/Social life is important



# How do you get R1 faculty position?

- First-order: Grad school and post-doc
- Develop a research program. “They” expect you to have more than a vague idea.
- Be diverse, flexible in fitting your research to the institute.
- Demonstrate that you can be an independent researcher.
- Publications
- Better have good recommendations from you advisors.

# Odds and ends...Random advice

- Communication: How successful can you be if you can't communicate your ideas and results?
- Get comfortable with public speech
- Proof-read
- Make friends



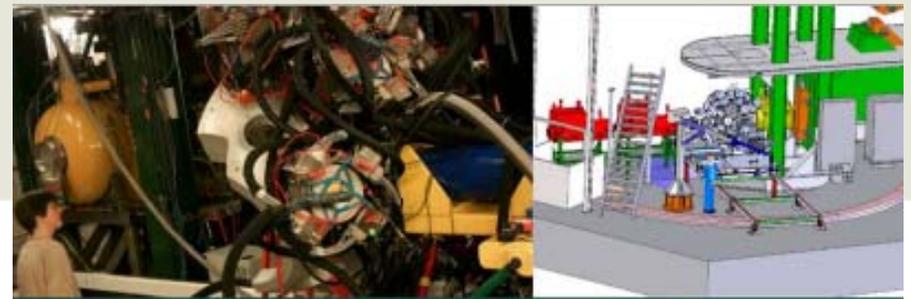
# Plug: NSCL/MSU

Education & Mentoring of the next generation of nuclear scientists are core goals of NSCL

- ~30 research associates
- ~60 graduate students
- ~80 undergraduate students

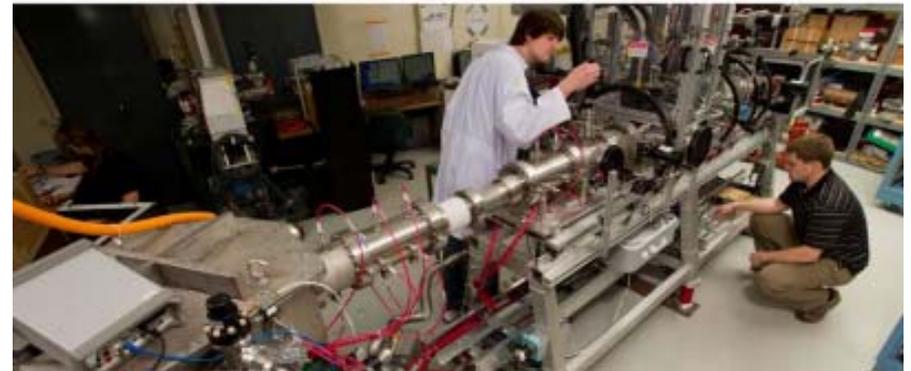
NSCL educates approximately 10% of the nation's Ph.Ds in nuclear science, or 1/3 of the nation's Ph.Ds in low-energy nuclear physics.

Diverse collection of research programs in experimental, theoretical, and accelerator physics.



National Superconducting Cyclotron Laboratory

Graduate Studies 2013  
at Michigan State University



[http://www.nscl.msu.edu/files/2013\\_NSCL\\_Grad\\_Broch.pdf](http://www.nscl.msu.edu/files/2013_NSCL_Grad_Broch.pdf)



# Summary

## Bottom Line

Grad School: You get paid to get a Ph.D!

Post-doc: You get paid to gain more experience

Faculty: You get paid to do what you love (if you love it).

# Acknowledgments

*Grad. School Advisor: Sherry Yennello*



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*Post-doc Advisors: Michael Thoennesen*

