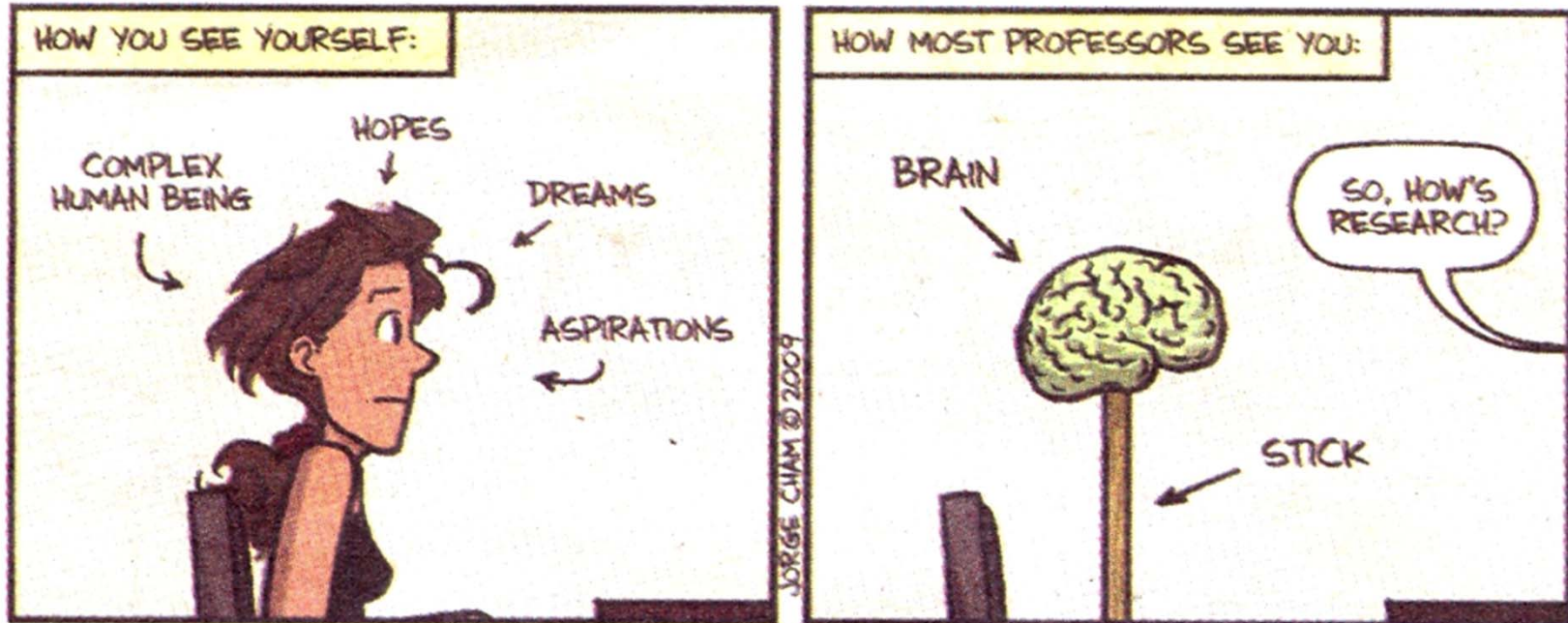
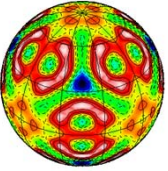
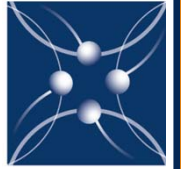


# Tips for finding an advisor



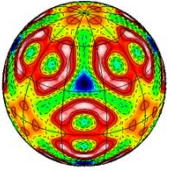


# Finding an advisor



- **What does an advisor do?**
  - Guides your PhD research
  - Generally funds your research
  - Is the main editor of your PhD thesis
  - Helps you make contact with others in the scientific community
- **How many advisors are there at UIUC?**

Approx. 70-80 professors supervise students for physics PhD (not just in Physics!! ~10% of Physics grad students do research in other departments!)
- **How many students are there here?**
  - Approx. 270 students are seeking physics PhD (most advanced grad students already have advisors)



# Key decisions you'll need to make



## 1. Do you want to be a theorist or an experimentalist?

### Theorists enjoy:

Analytical calculations

Mathematics

Developing models

Computers

Does a blackboard full of equations excite you?

### Experimentalists enjoy:

Equipment building

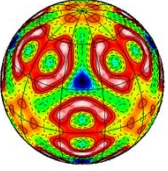
Equipment using

Data Analysis

Computers

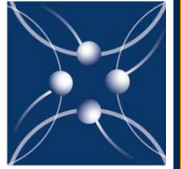
Does a table with circuit boards, optical mounts, etc., excite you?

If you want to do both, generally speaking, it's probably a little easier to do theory as an experimentalist than to do experiments as a theorist...

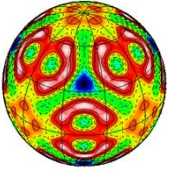


# How is it at Illinois?

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- About 35% of students do theory, 65% do experiment
- Of the students who change (theory to experiment) or (experiment to theory), most started in theory and change to experiment



# Key decisions you'll need to make



## 2. What area of research interests you?

**Astrophysics** - Physical processes of planets, stars, galaxies,...

**Atomic and Molecular Physics** - Physics of atomic or molecular systems

**Biophysics** - Physical processes of biological molecules

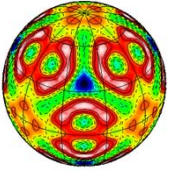
**Condensed Matter** - Physics of materials, solid phases of matter

**Nuclear/Medium Energy Physics** - Physics of atomic nucleus, muons, protons, neutrons, other particles

**Particle/High Energy Physics** - Study fundamental constituents of matter

**Physics Education Research** - Study how we learn science concepts

**Quantum Information** - Study/Exploitation of quantum 'weirdness'



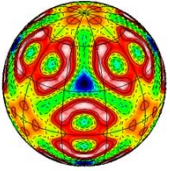
# Key decisions you'll need to make

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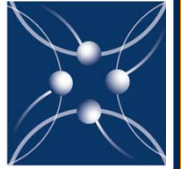


## 3. What *style* of research/advisor interests you?

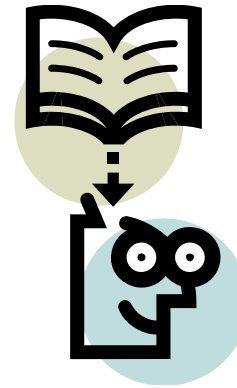
- Large collaborative project vs. Small individual project  
(high energy/nuclear vs. condensed matter/biophysics)
- Pure subfield vs Interdisciplinary research
- “Hands on” advisor vs. “Hands off” advisor
- New project/lab vs Established project/lab

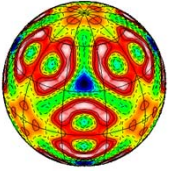


# How can you tell what you want?

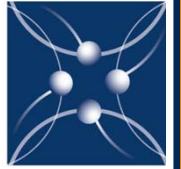


- You just know
- Based upon classes you liked best or did well in
- From undergraduate research projects you liked or didn't like
- By seminars you see that inspired you (or didn't!)





# What advisors are looking for



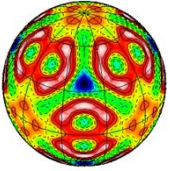
## Experimental advisors:

- Most experimental advisors would like, but don't require, laboratory experience...i.e., they will train you
- Those building a new lab may want more experimental background
- Less grade conscious, in general; less concerned with which courses you've taken

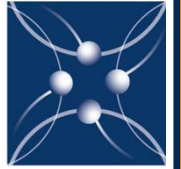
## Theory advisors:

- Theory advisors are generally more grade-conscious, might check qual results
- May want you to have more advanced courses (quantum field theory, etc) before taking you as a student
- Generally want a strong math background

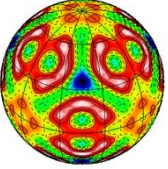




# Some Tips

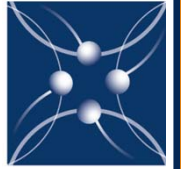


- Don't be too “calculating” about your decision: **research can be hard sometimes, so find something that excites/inspires you!!**
- Don't forget about opportunities outside the physics department
- Explore a little...don't assume you're sure you know what you want to do: **keep an open mind as you're watching the different research presentations in Phys 596**
- Your quality of life has a definite impact on the quality of research you can do, so find an advisor and group environment you are comfortable in

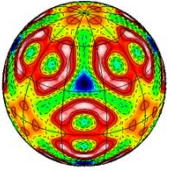


# Goals and Time frames

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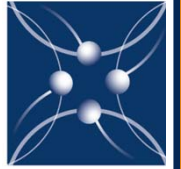


- **Goal:** start with an independent study with an advisor (Physics 597)
- **Time frames:**
  - Hang around the lab/group in Fall 2012 or Spring 2013
  - Try to start formally with a group in Summer 2013

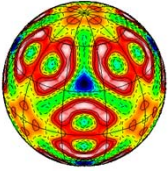


# How to find an advisor

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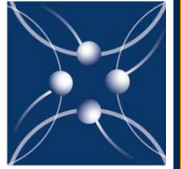


- Identify potential advisors
  - Look over their research pages on <http://physics.illinois.edu/research/>
  - Go to their seminars
  - Send them an e-mail to ask if you can meet to talk about their research
  - Talk with grad students of potential advisors

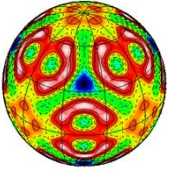


# Questions to ask a potential advisor

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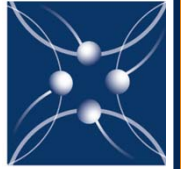


- Is he/she taking students? If “no”, then when will they take on students?
- Are the advisor’s research projects collaborative (multiple students), or does every student have his/her own project?
- Will you be expected to build a new apparatus (or write new code), or will you be jumping in the middle of a well-developed project?
- Is it likely you’ll be constantly funded during your tenure, or will you be expected to TA periodically?



# How to find an advisor

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- Once you've identified an advisor you're interested in, get your foot in the door
  - Ask about attending group meetings
  - Ask about getting involved with small projects, even if you're not funded
  - Start early (this semester or next semester!)