

# What can you do with a physics major?

Gathered from

<http://www.aps.org/careers/guidance/statistics.cfm>

# Physics Bachelors 1 Year Later

**4000 Bachelors Degrees**

**50%**

**50%**

## Employment

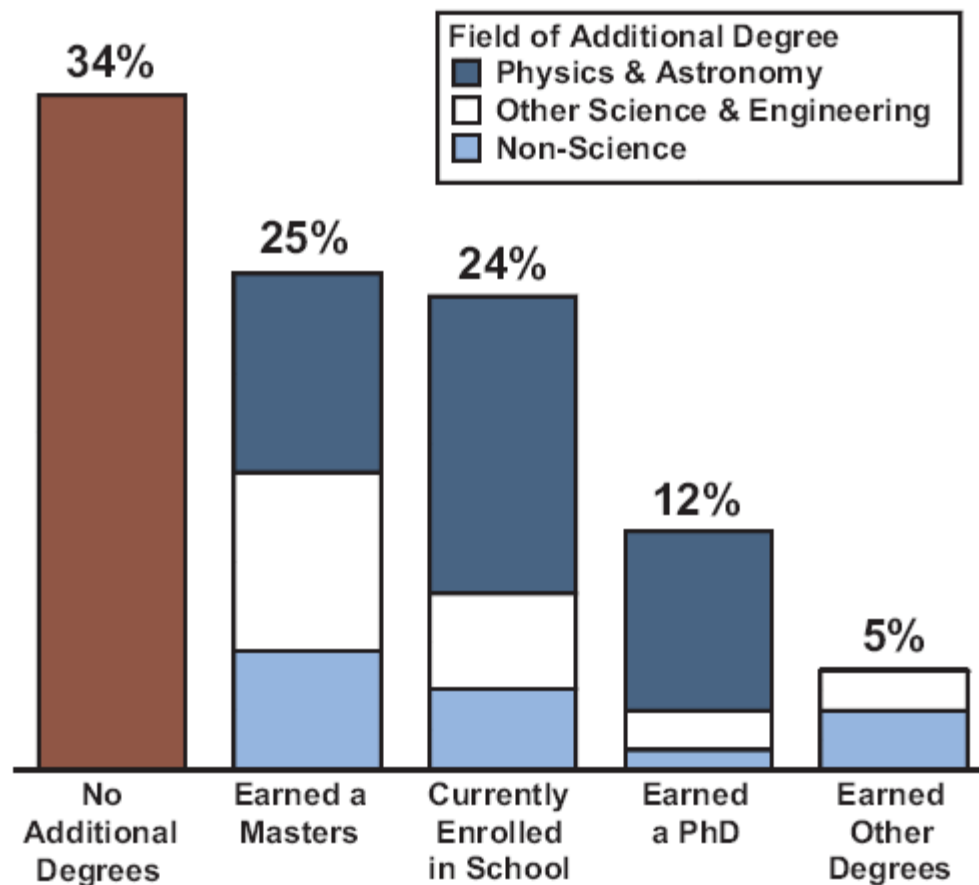
1100 Private Sector  
250 High School  
190 Government  
150 Active Military  
230 Other

## Graduate School

1160 Physics and Astronomy  
320 Engineering  
200 Other Science and Math  
120 Medicine and Law  
130 Education and Other

Four percent of the respondents indicated they were unemployed at the time of the survey, which represents about 160 individuals.

## Highest Degree Obtained by Physics Bachelors, Five to Seven Years After Degree



Source: 1998 Bachelors Plus Five Study

# Two possible routes

## Graduate school

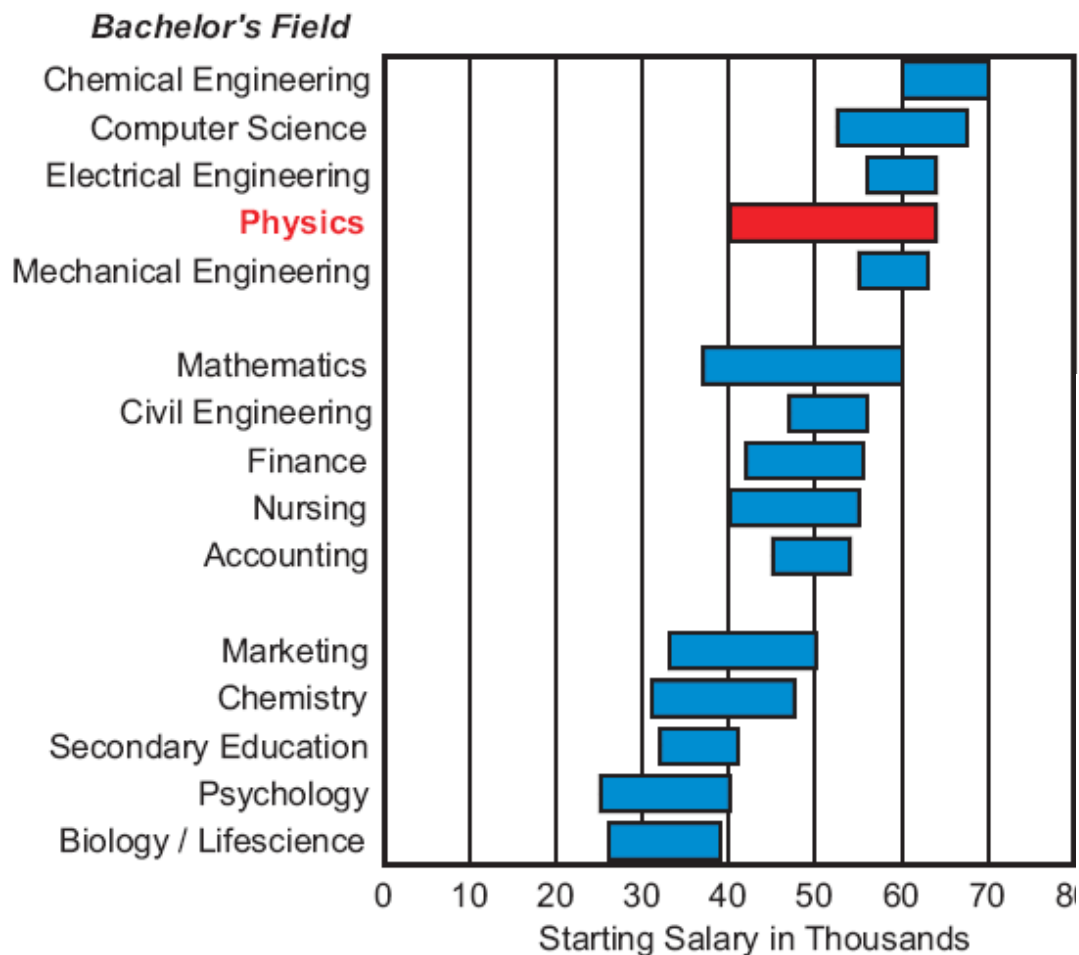
- Masters and/or PhD
- Often leads to professional research (in academia or with a company)

## Job right after Bachelors degree

- A job is not a career
- Your first job will likely not be your only job

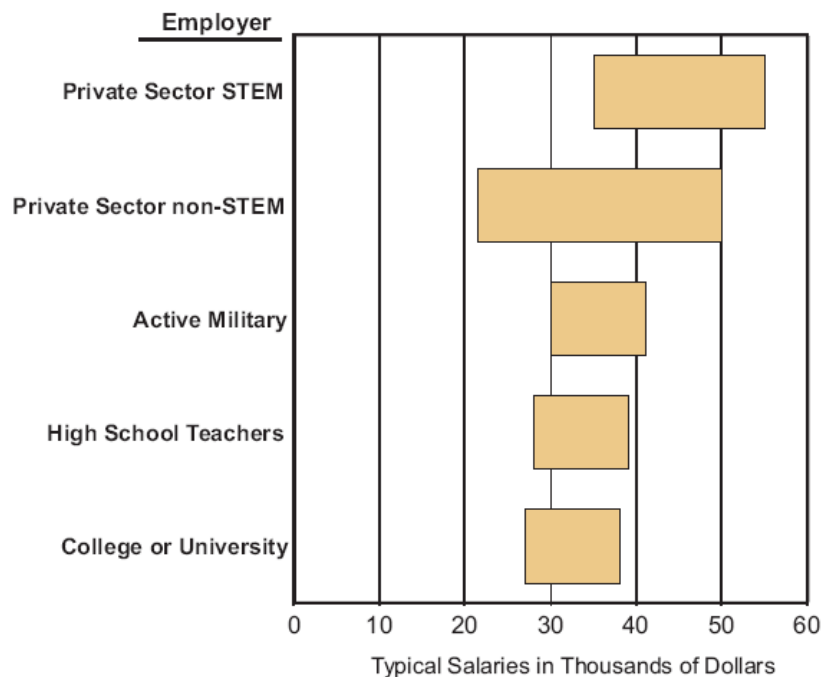
# What's a Bachelor's Degree Worth?

Typical Salary Offers by Campus Recruiters, AY 2008-09



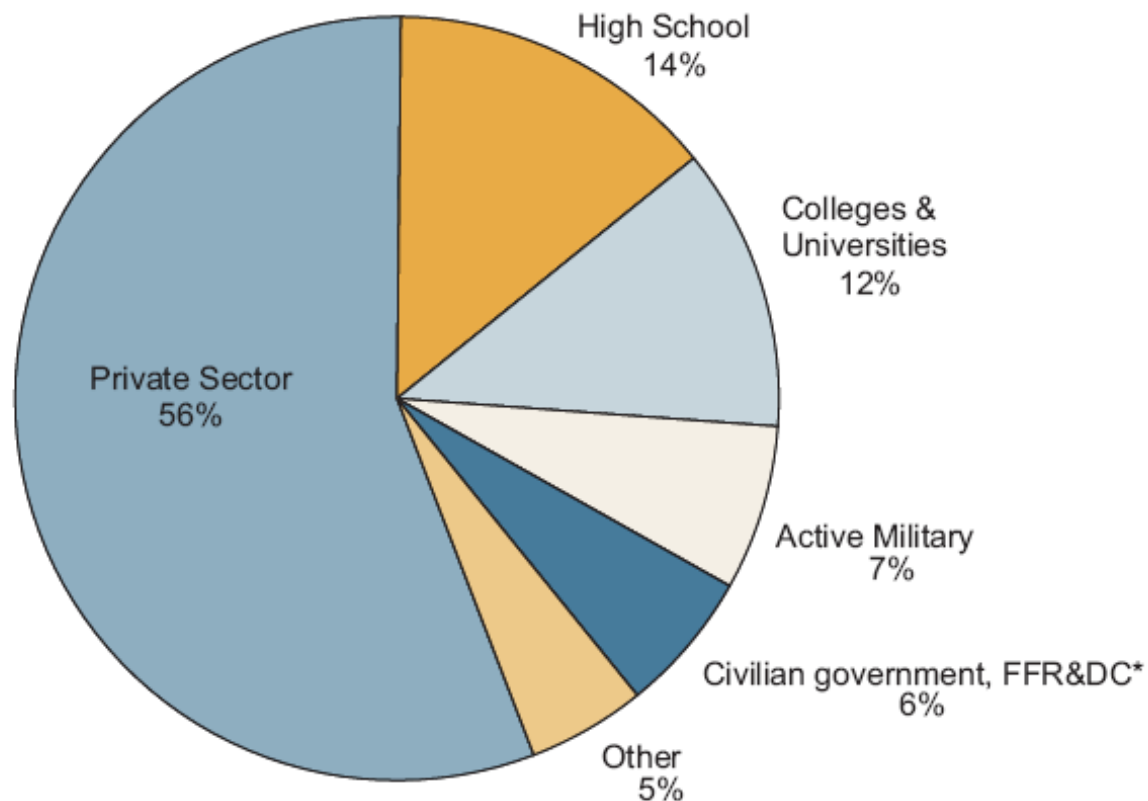
## Bachelor's Starting Salaries

Physics Bachelor's of 2005 & 2006



# WHERE PHYSICS BACHELORS WORK

Initial employment, classes of 2003 & 2004



\* FFR&DC: Federally Funded Research and Development Center

# What Do Physics Bachelors Do?

<u>Type of Job</u>	<u>Percent</u>
Software	24
Engineering	19
Science & Lab Technician	9
Management, Owner & Finance	20
Education	12
Active Military	6
Service and Other Non-Technical	10

## Predominant Work Activities

### Recent Physics Bachelors

Private Sector STEM	Design & Development Programming, Simulation & Modeling Quality Control
Private Sector Non STEM	Management & Administration Financial & Legal Services Sales & Marketing
Civilian Government	Applied Research Basic Research Design & Development

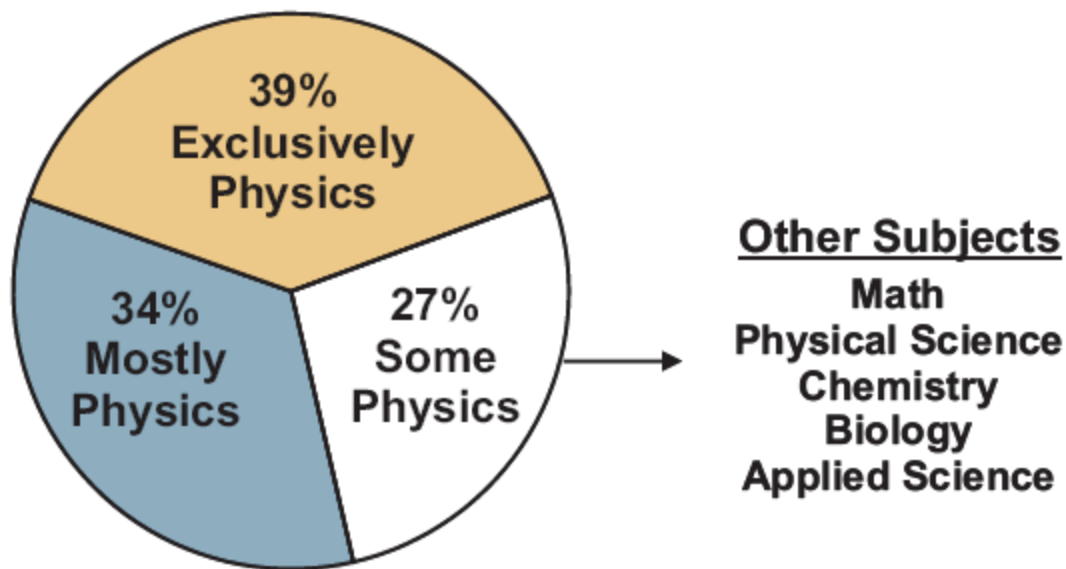
# Employers in California that Recently Hired New Physics Bachelor Recipients

- Aerospace Computing, Inc.
- Amgen, Inc.
- Apple, Inc.
- Applied Operations Research, Inc.
- Boeing
- California Analytical Instruments
- E&M Electric
- Electronic Arts
- Electro-Optical Industries
- Fire Cause Analysis
- General Atomics
- GreenVolts
- IBM Almaden Research Center
- Intel Corporation
- Jet Propulsion Laboratory (JPL)
- Lawrence Berkeley National Laboratory (LBL)
- Lockheed Martin Corporation
- Maxim Systems, Inc.
- Melles Griot
- Nanosolar, Inc.
- NASA/Caltech Jet Propulsion Lab
- Northrop Grumman
- NVIDIA
- Raytheon
- Scripps Research Institute
- Spectra-Physics
- Walt Disney Imagineering



# What Do High School Physics Teachers Teach?

Recently Hired Teachers with Physics Degrees

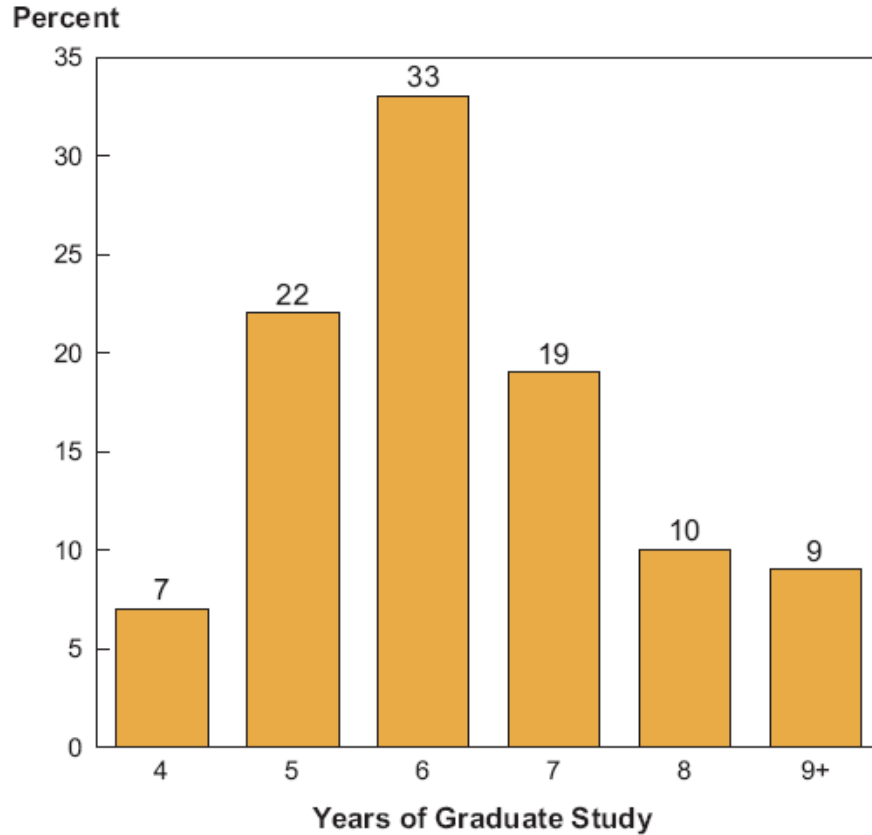


The average teaching load is 5 classes per term.

# Getting a PhD

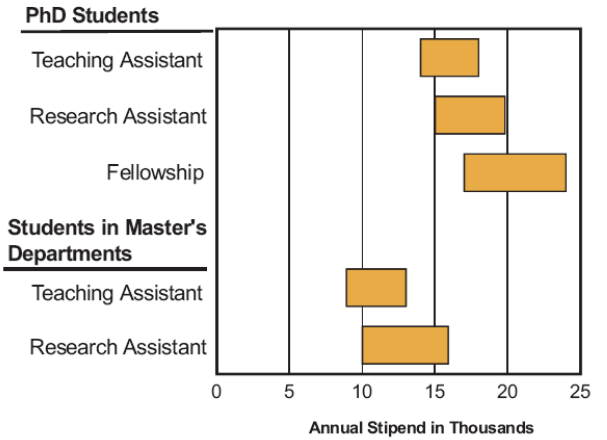
- Research Degree
- Grad School in Physics, Astronomy, Engineering are most common
- Takes an average of six years to complete
- Two years for a masters degree
- Most PhD education in science is funded
- If interested, should get BS not BA
- Undergraduate research important

# Physics PhD How Long Does it Take?

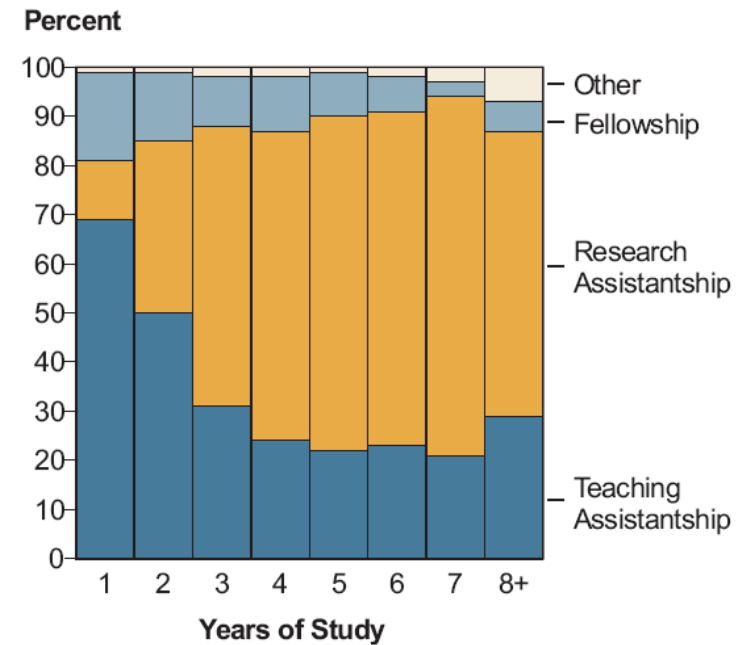


This graph depicts the number of full-time equivalent years of physics graduate study completed by the PhD class of 2004. US Citizens only.

## Typical Stipends Full-time Physics Graduate Students

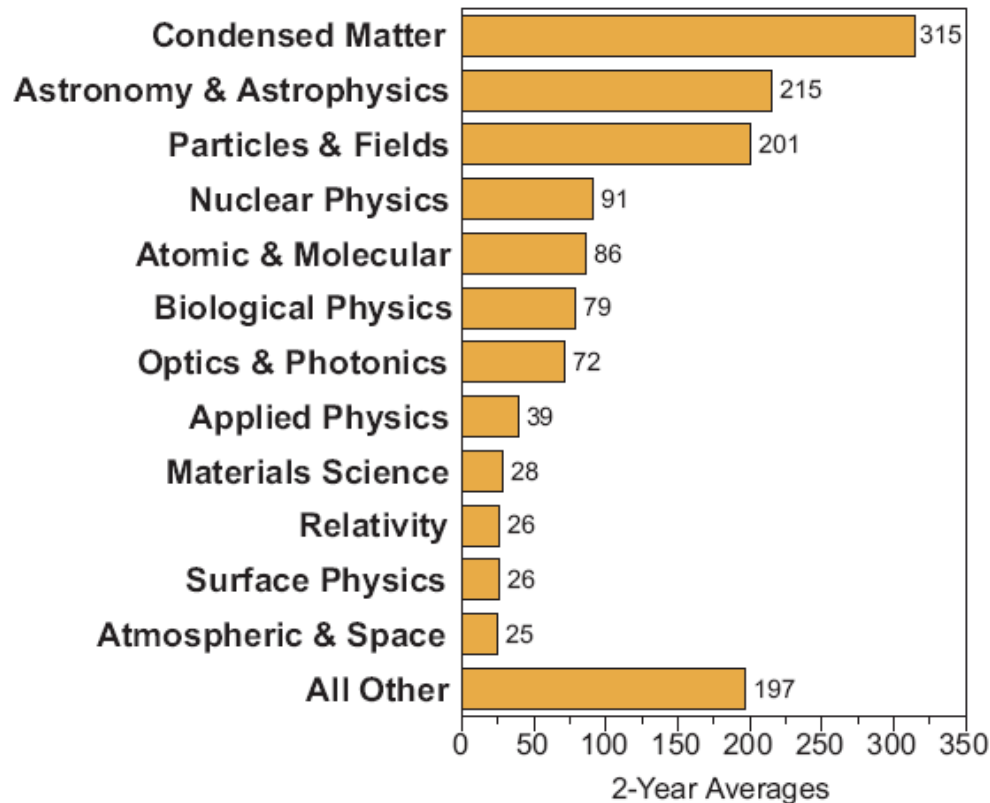


## Primary Type of Support for Physics Doctoral Students



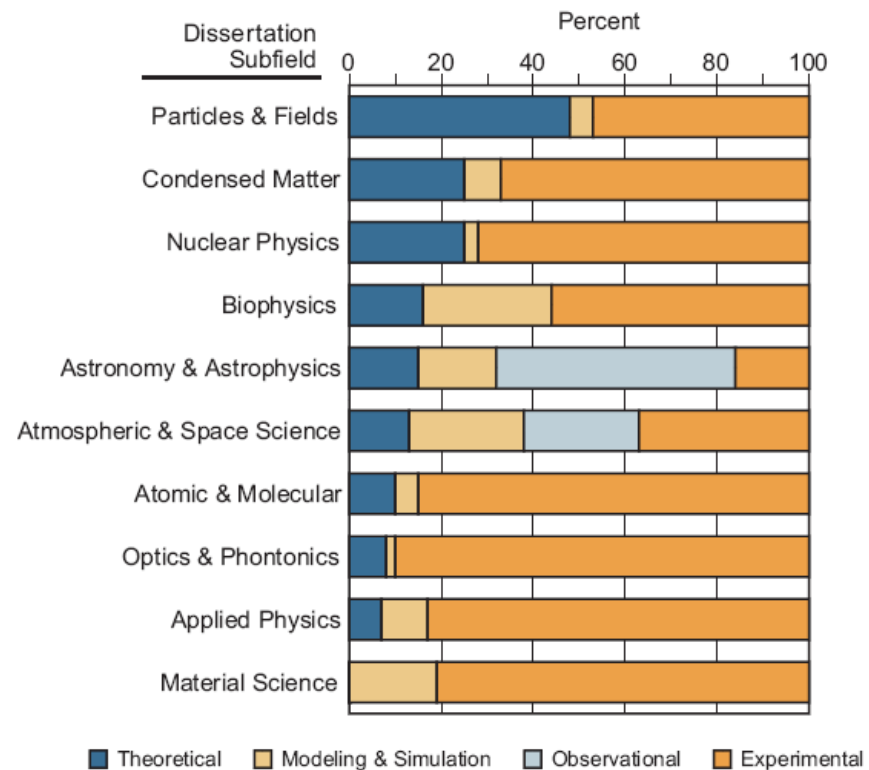
# PhDs by Subfield

## Physics & Astronomy PhDs of 2005 & 2006



## Type of Dissertation Research

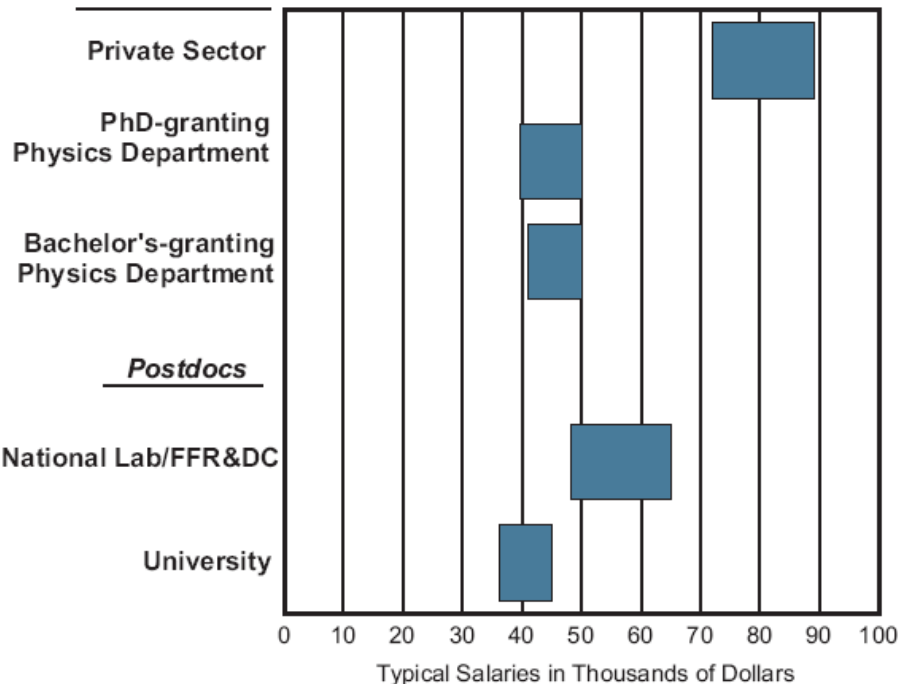
### Physics and Astronomy PhD Classes of 2002 & 2003



# PhD Starting Salaries

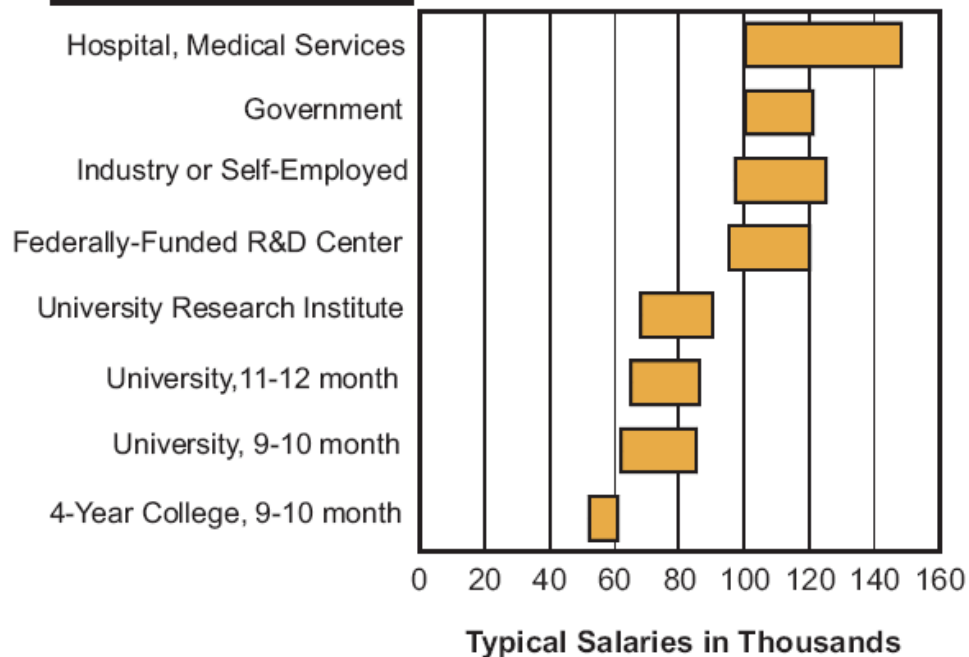
## Physics PhDs of 2005 & 2006

### Non-Postdoc Positions



# PhD Salaries 10 Years Later

### Place of Employment



# Before You Begin a Job Search

1. Don't get stressed out about it (3<sup>rd</sup> most common concern of undergrads)
2. Make contacts from your department
  - Get to know upperclassmen
  - Try to meet alumni
3. Make choices that will set you apart

# Setting Yourself Apart

- A physics degree with a solid GPA is the first step.
- Develop other skills
  - Computer programming, writing, communication
  - Second language, business course
- Get some experience
  - Do an internship or arrange to “shadow” someone
  - Do research (summer or next Fall)

# Research Experiences of Physics Undergraduates

<b>Working with a professor on a project</b>	<b>37%</b>
<b>As part of a thesis project</b>	<b>28%</b>
<b>Research Experience for Undergraduates</b> (REU-Funded by the National Science Foundation)	<b>26%</b>
<b>Non-departmental employment</b> (e.g. Summer job)	<b>25%</b>
<b>While in a co-op or internship</b>	<b>13%</b>
<b>None</b>	<b>29%</b>



# Preparing to Seek Your First Job

1. Series of questions for self-assessment
2. Identify your own skills
3. Determine what you value in a job
4. Reflect on a list of assests identified by physicists in industry

# Preparing for a Job Search: Self Assessment

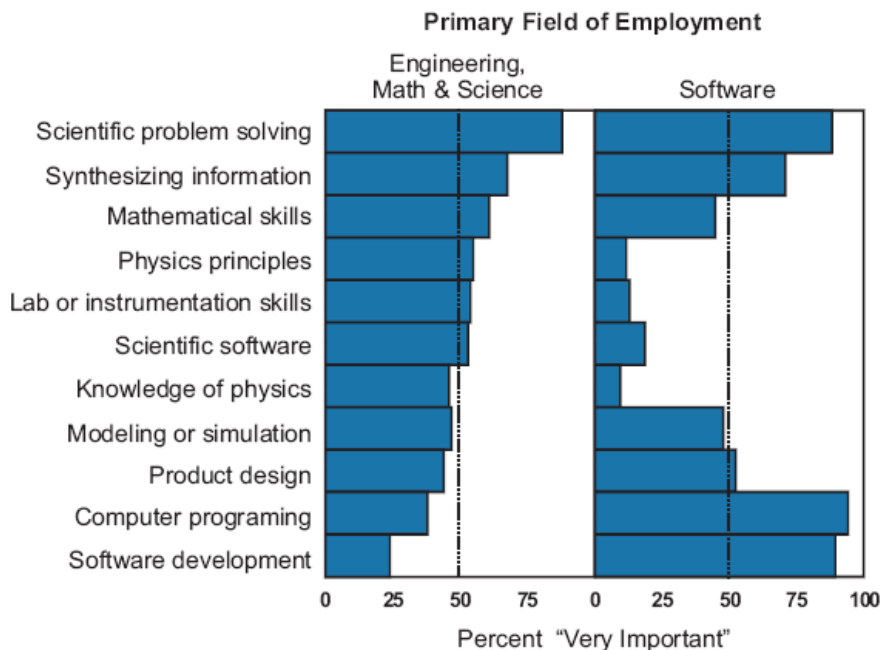
1. Do I have overarching goals?
2. Do I want my life's story to be told through my own accomplishments or through my influence on others?
3. Do I want my personal accomplishments to have tangible form?
4. Do I want to be a generalist or specialist?

# Other Questions

- What do I enjoy doing?
- What are my personal strengths/weaknesses?
- What are my technical skills and experiences?
- What are my non-technical skills and experiences?
- Am I better at starting a project or at follow-through?
- Am I more a leader or a follower?
- Am I an idea person or a detail person?
- Am I a people person?
- Do I prefer a task where I work alone or with others?
- What is important to me – Money? Job Satisfaction? Prestige?
- Am I willing to relocate?
- What types of positions or responsibilities/dues are not acceptable?
- What are my salary needs?

# What's Important?

Importance of knowledge and skills for physics bachelors, 5 - 7 years after degree

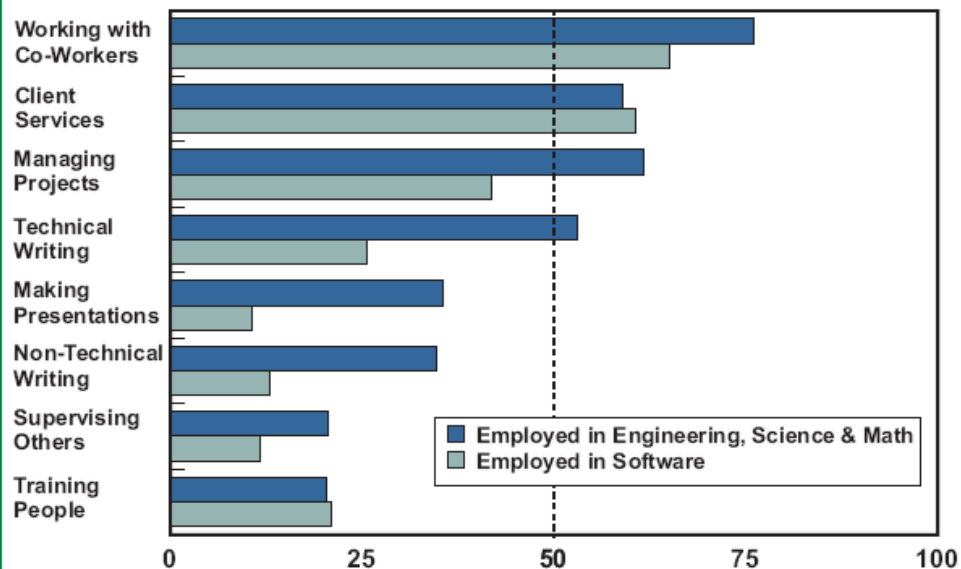


Percentage of physics bachelors who chose 4 or 5 on a 5-point scale where 5 = essential.

Source: 1998-99 Bachelors Plus Five Study, preliminary results

## Communication and People Skills

Percentage of physics bachelors who spend a large amount of time on the following work activities, 5-7 years after earning their degrees



Source: 1998-99 Bachelors Plus Five Study

# Homework – Due next Monday

- Complete the Work Values Inventory
  - Can be done at <http://people.usd.edu/~bwjames/tut/time/workinv.html>
- Through our Career Center, take either Personal Assessment test (online, but requires a code)
- Go over the lists of important skills (previous slide.)
  - What are your strengths and weaknesses?
- Write your obituary (submit by email)
  - What do you want your legacy to be? What do you want to be remembered for?