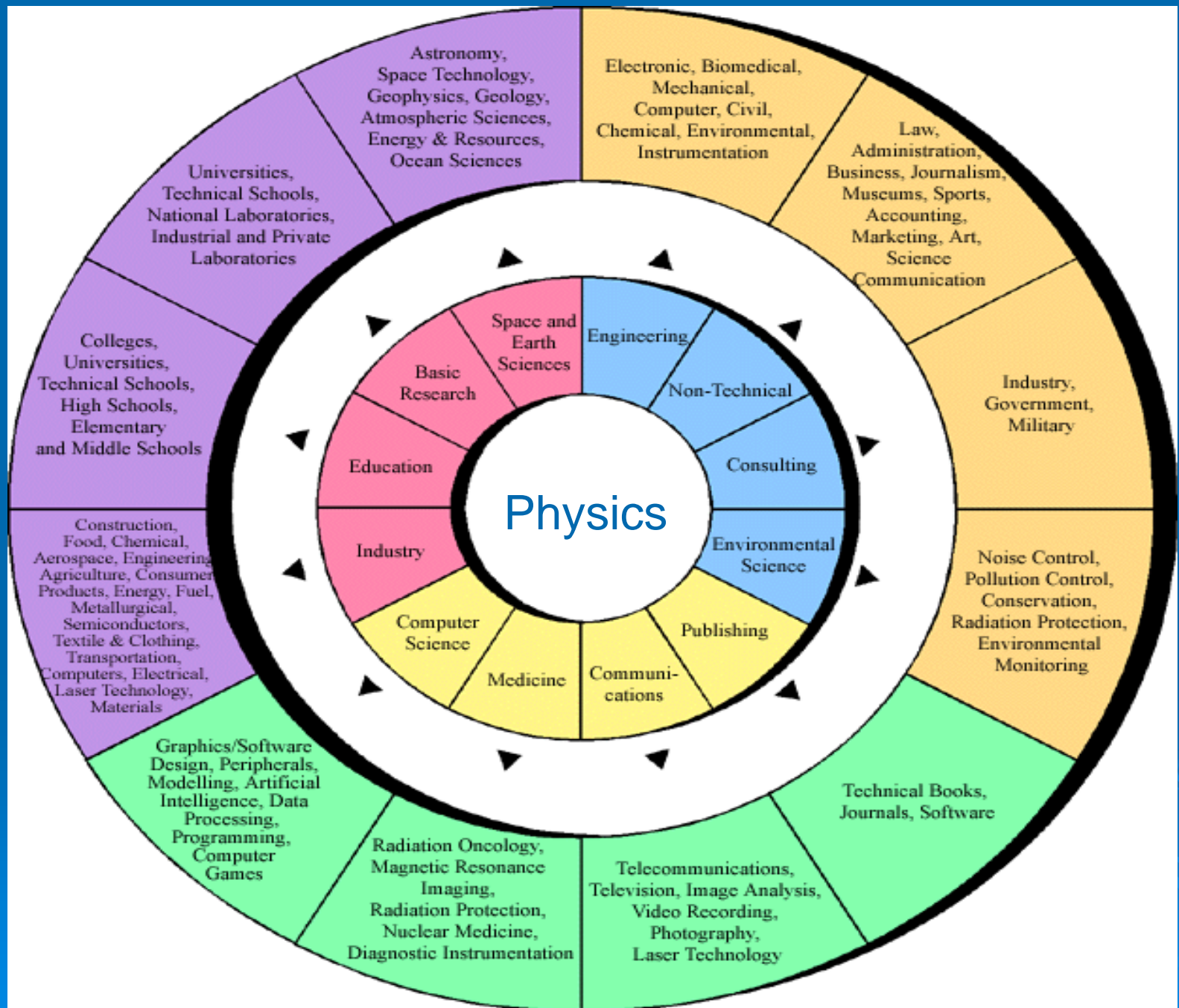


Careers for Physics Majors

1. General: Skills/Salaries
3. Physics bachelor's career statistics
4. Physics master's career statistics
5. Physics PhD career statistics

Most of the information is from the American Institute of Physics,
<https://www.aip.org/statistics>.



CNN 2013 lowest unemployment

Take this kind of ranking with a “grain of salt”. But unemployment is low among physicists and astronomers.

Lowest unemployment	Rate
Astronomers and physicists (probably PhD)	0.3%
Directors, religious activities and education	0.3%
Biomedical engineers	0.4%
Judges, magistrates, and other judicial workers	0.4%
First-line supervisors of fire fighting and prevention workers	0.4%
Petroleum engineers	0.6%
First-line supervisors of correctional officers	0.6%
Physicians and surgeons	0.8%
Audiologists	0.8%
Information security analysts	0.9%
Nurse practitioners	0.9%

Average MCAT scores 2012

	Physical Science	Biological Science	Verbal Reasoning	Number of Applicants
Economics	10.8	10.8	9.9	633
Physics	11.1	10.4	9.8	228
Biomedical Engineering	11.1	10.6	9.6	1,147
Mathematics	10.6	10.4	9.3	340
Electrical Engineering	10.9	10.1	9.4	135
Neuroscience	10.1	10.6	9.5	1,615
English	9.6	10.1	10.2	380
Biochemistry	10.1	10.4	9.0	2,864
Chemistry	9.5	10.0	9.0	2,113
Microbiology	9.2	10.1	8.8	759
Psychology	9.1	9.6	9.1	2,327
Biology	9.0	9.7	8.7	13,605
Premedical	8.3	8.9	8.1	587
All Majors	9.5	9.9	9.0	44,464

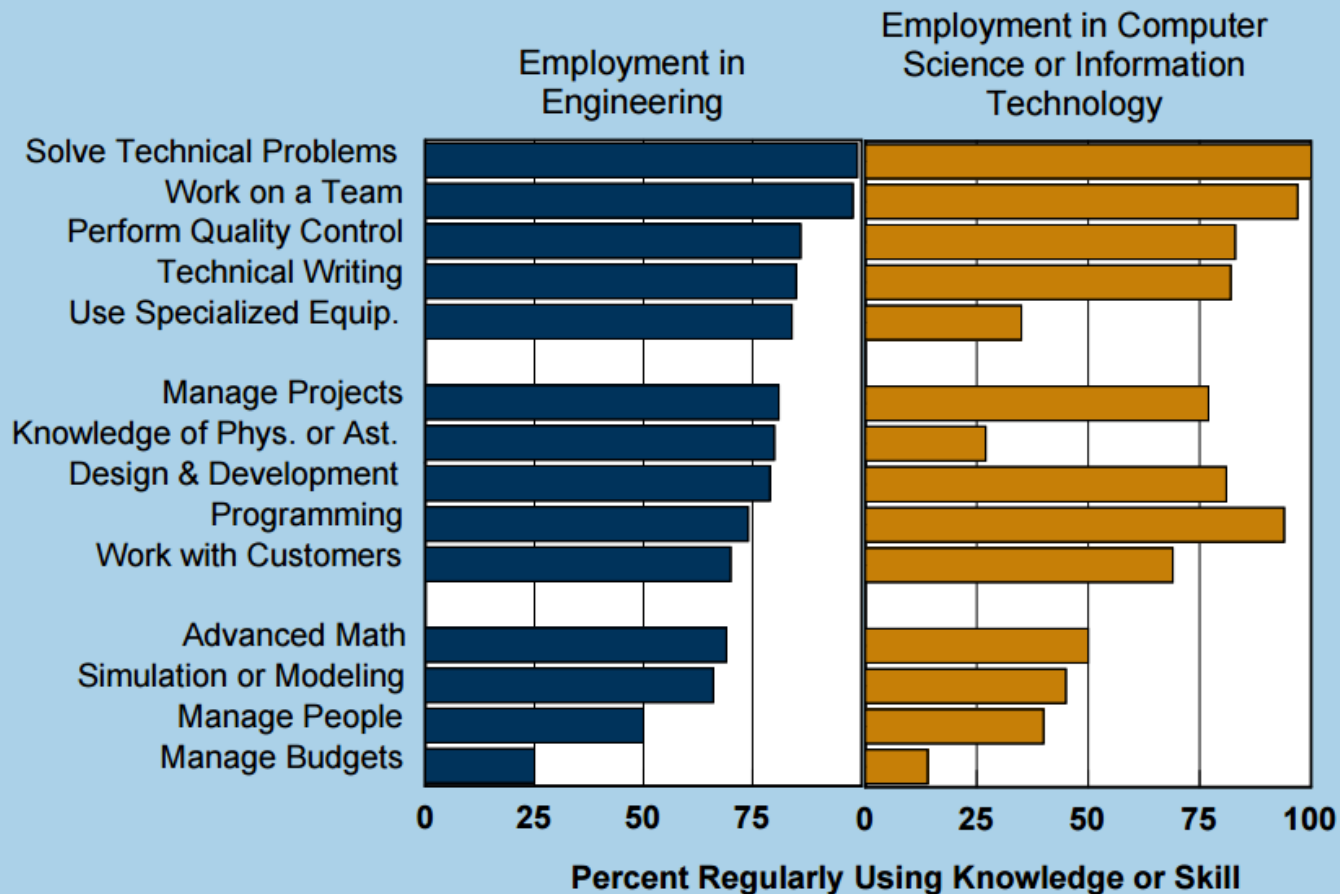
* Sorted by total score. Based on test takers who applied to Medical School. Applicants are allowed to take the MCAT exam more than once; these averages are computed using each applicant's most recent MCAT exam scores.

Average LSAT scores 2012

	Average Score*	Number of Applicants
Mathematics	162.2	254
Physics	162.1	126
Economics	159.1	2,468
Engineering	157.3	1,127
Chemistry	156.7	267
History	156.7	3,323
English	155.8	3,728
Biology	155.2	1,095
Political Science	154.3	12,215
Psychology	153.3	3,335
Computer Science	152.3	327
Pre-Law	149.0	994
Criminal Justice	145.3	2,878
All Majors	153.6	66,197

* Based on test takers who applied to Law School. Applicants are allowed to take the LSAT exam more than once; these averages are computed using each applicant's highest score on the LSAT exam.

Knowledge and Skills Regularly Used by Physics Bachelors Employed in the Private Sector, Classes of 2013 & 2014 Combined

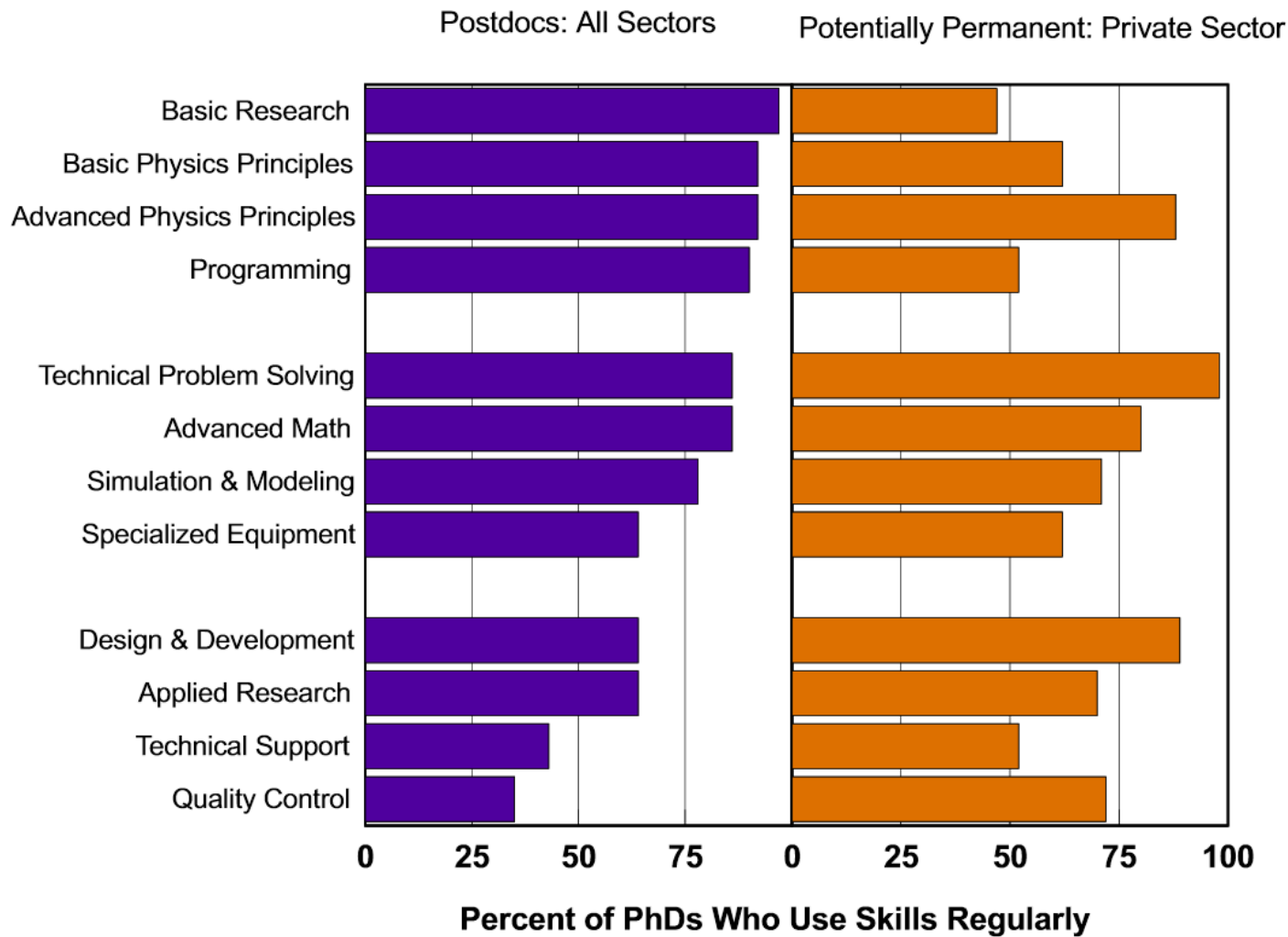


Engineering =
36% of Physics
BS grads

CS/IT = 23% of
Physics BS grads

Percentages represent the physics bachelors who chose "daily," "weekly," or "monthly" on a four-point scale that also included "never or rarely."

Scientific & Technical Knowledge Regularly Used by New Physics PhDs, Classes of 2011 & 2012 Combined



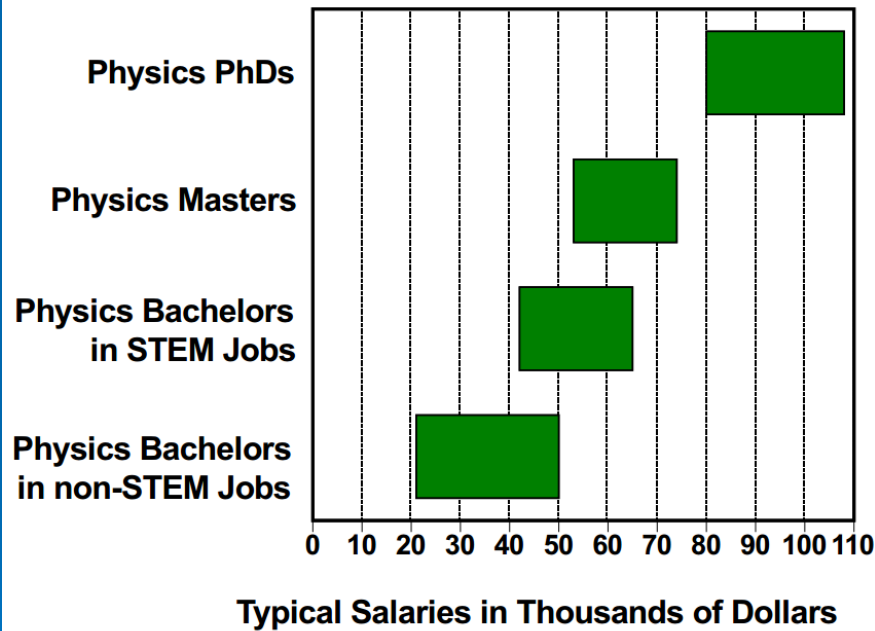
Private Sector Salaries

Starting Salaries

Mid-Career Salaries

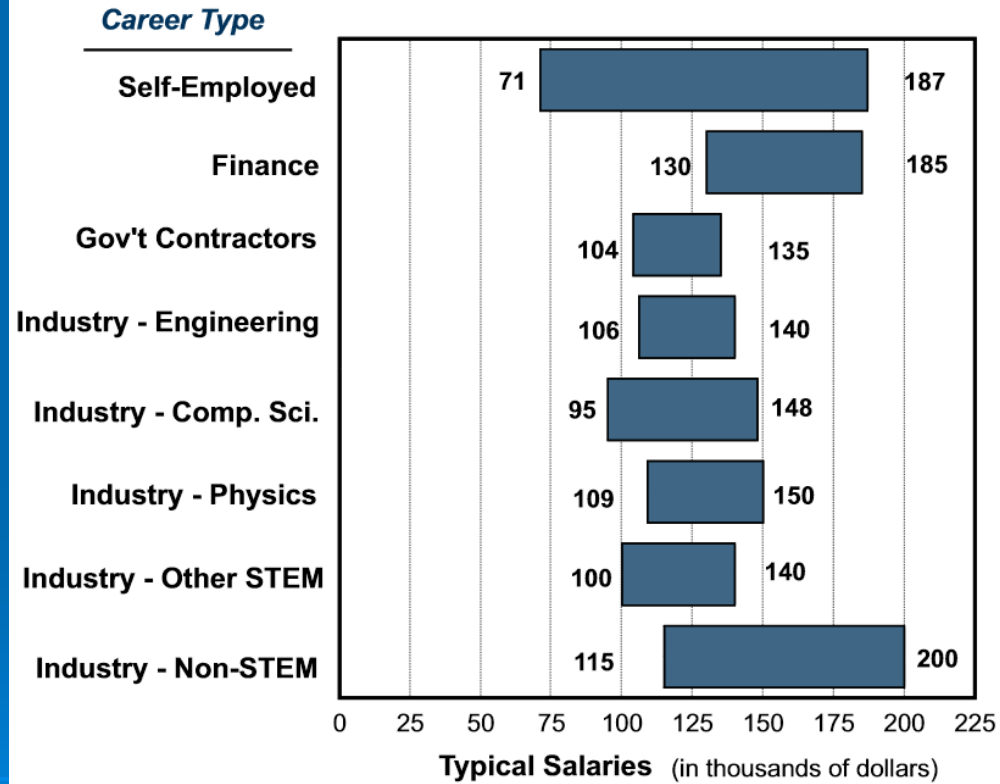
Starting Salaries in the Private Sector

Physics Degree Recipients, Classes of 2013 & 2014



Note: Typical salaries are the middle 50%, i.e. between the 25th and 75th percentiles.
STEM refers to positions in Science, Technology, Engineering, and Math.

Physicists in the Private Sector Salaries by Career Type, 2011



B.S. Physics Career Statistics

Includes Physics, Applied Physics, Physics-Astronomy, and Teaching majors



Status of Physics Bachelors One Year After Degree, Classes of 2013 & 2014 Combined

Physics

Graduate Study **54%**

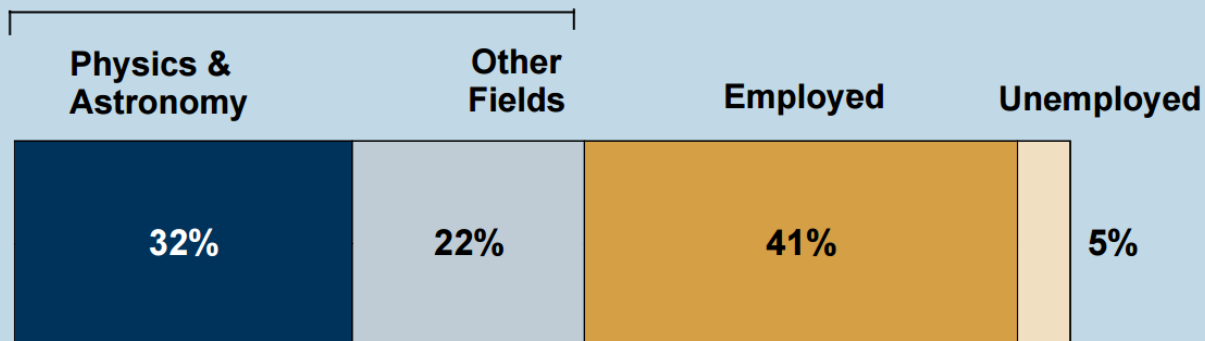
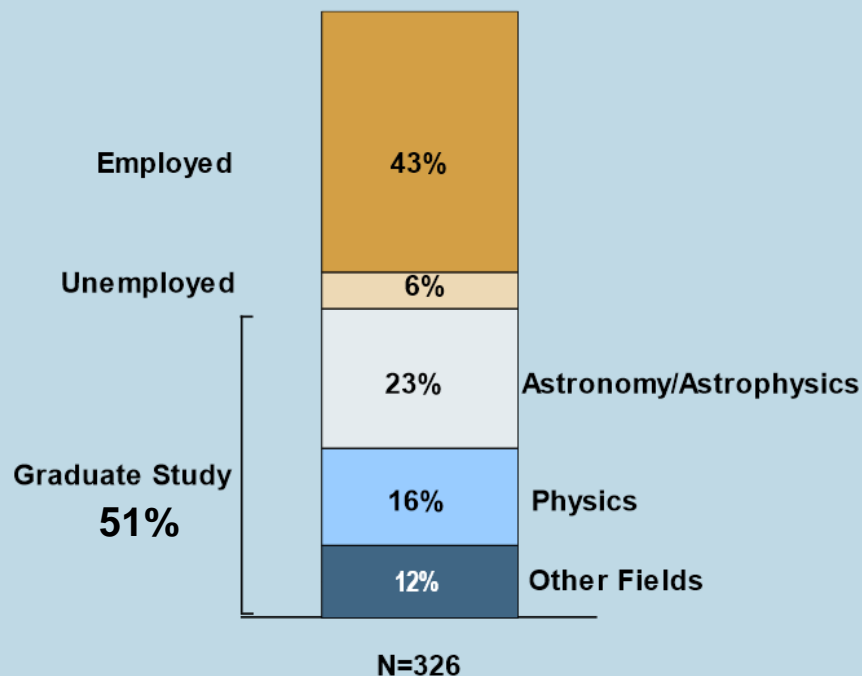


Figure based on 4,886 individuals.

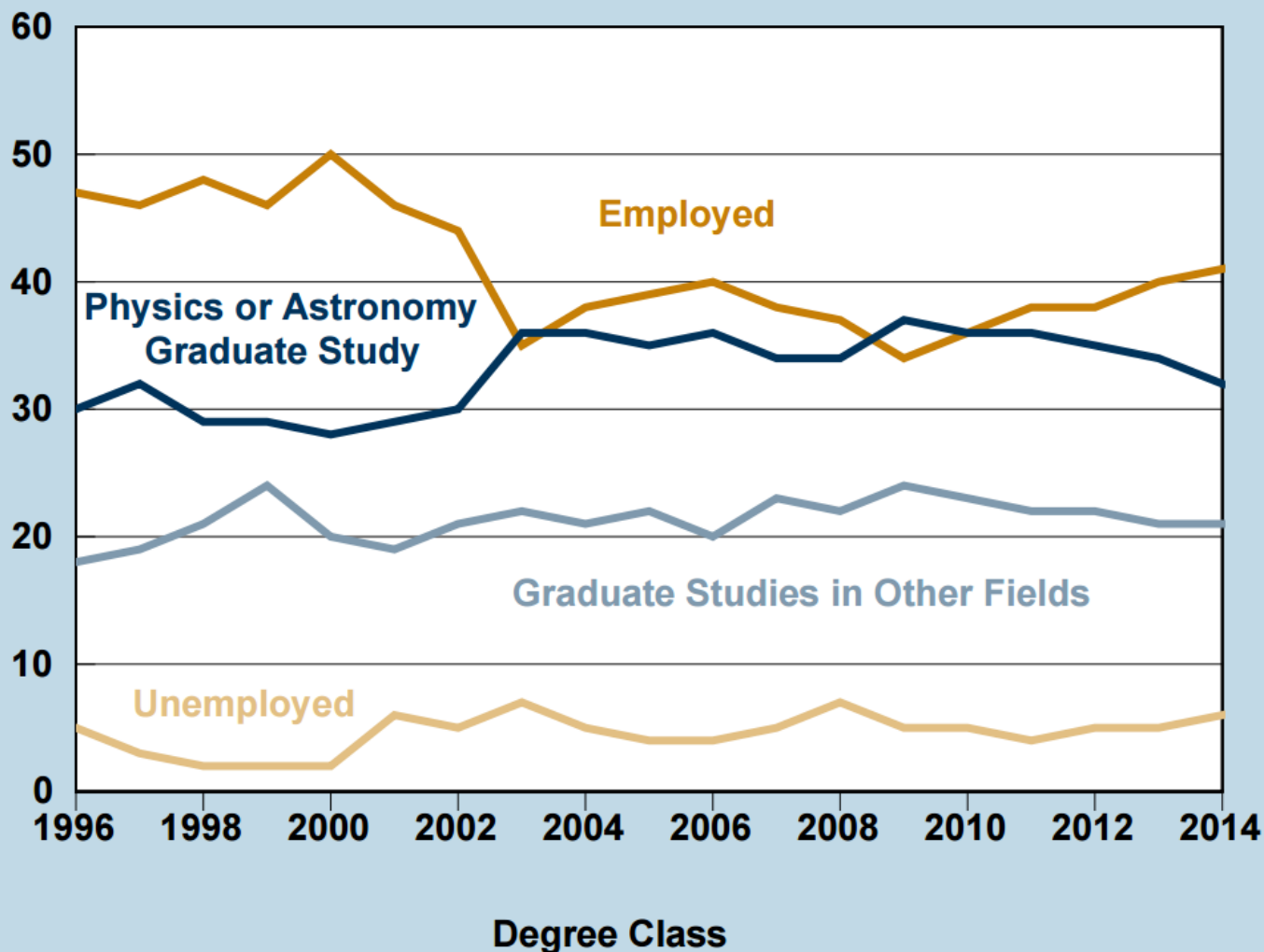
Astronomy

Status of Astronomy Bachelor's One Year After Degree, Classes of 2010, 2011 & 2012 Combined.



Status of Physics Bachelors One Year After Degree, Classes 1995 through 2014

Percent



~54% go to grad school, what do they study?

Field of Graduate Study for Physics Bachelors One Year After Degree, Classes of 2013 & 2014 Combined

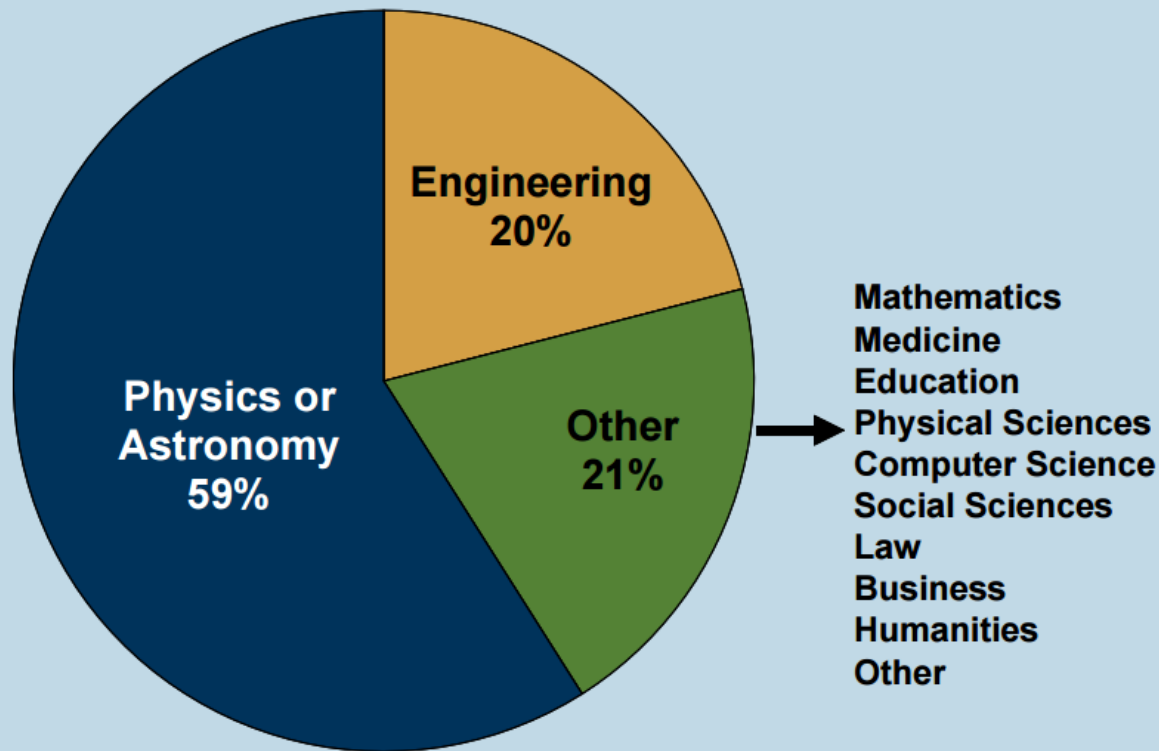
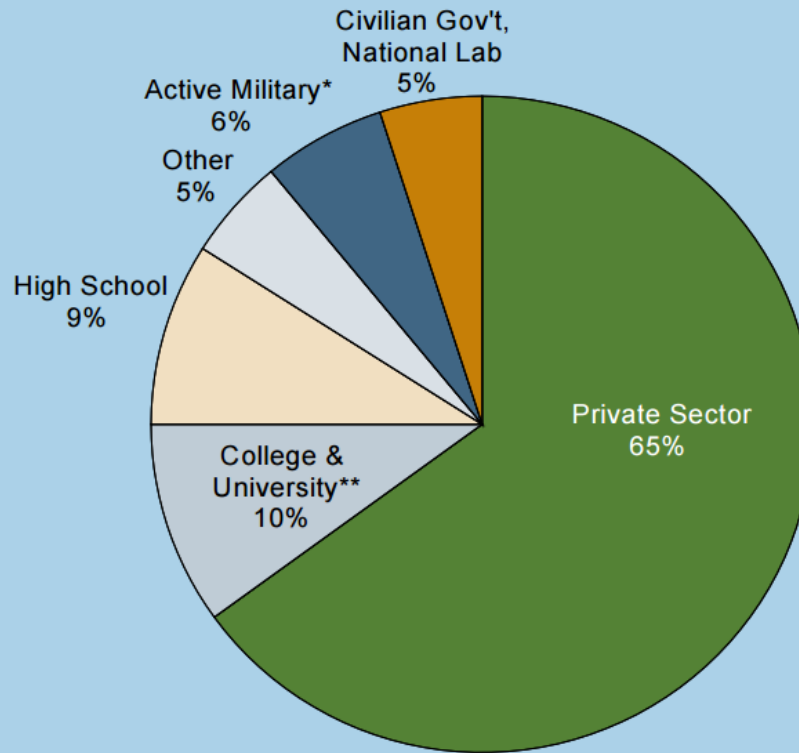


Figure based on 2,709 physics bachelors who enrolled in graduate school following graduation.

Of those who are employed...

**Initial Employment Sectors of Physics Bachelors,
Classes of 2013 & 2014 Combined**

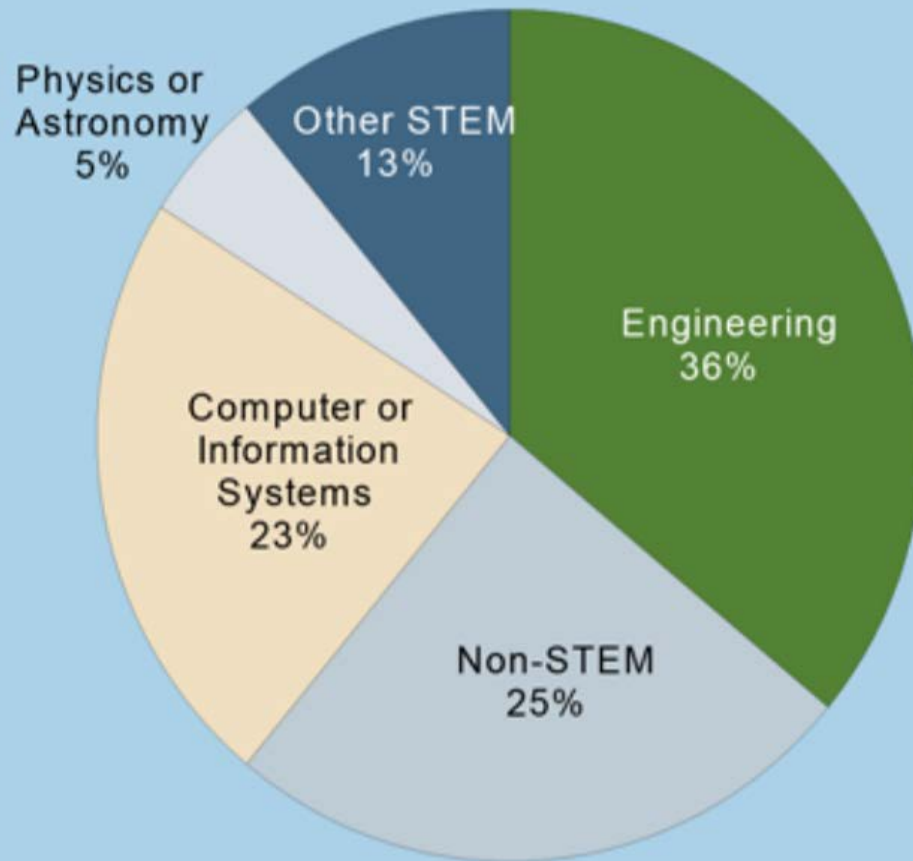


*Data do not include degree recipients from the three military academies (US Naval Academy, US Military Academy, US Air Force Academy).

** Data include two- and four-year colleges, universities, and university affiliated research institutes.

Figure based on the responses of 1,657 individuals

Field of Employment for Physics Bachelors in the Private Sector, Classes of 2013 & 2014 Combined



STEM refers to natural science, technology, engineering, and mathematics.

Figure is based on 1,141 responses

Common Job Titles, Physics B.S.

➤ Engineering

- Systems Engineer
- Electrical Engineer
- Design Engineer
- Mechanical Engineer
- Project Engineer
- Optical Engineer
- Manufacturing Engineer
- Manufacturing Technician
- Laser Engineer
- Associate Engineer
- Application Engineer
- Development Engineer
- Engineering Technician
- Field Engineer
- Process Engineer
- Process Technician

- Product Engineer
- Product Manager
- Research Engineer
- Test Engineer
- General Engineer
- Technical Services Engineer

➤ Computer Hardware/Software

- Software Engineer
- Programmer
- Web Developer
- IT Consultant
- Systems Analyst
- Technical Support Staff
- Analyst

➤ Education

- High School Physics Teacher
- High School Science Teacher
- Middle School Science Teacher

➤ Research and Technical

- Research Assistant
- Research Associate
- Research Technician
- Lab Technician
- Lab Assistant
- Accelerator Operator
- Physical Sciences Technician

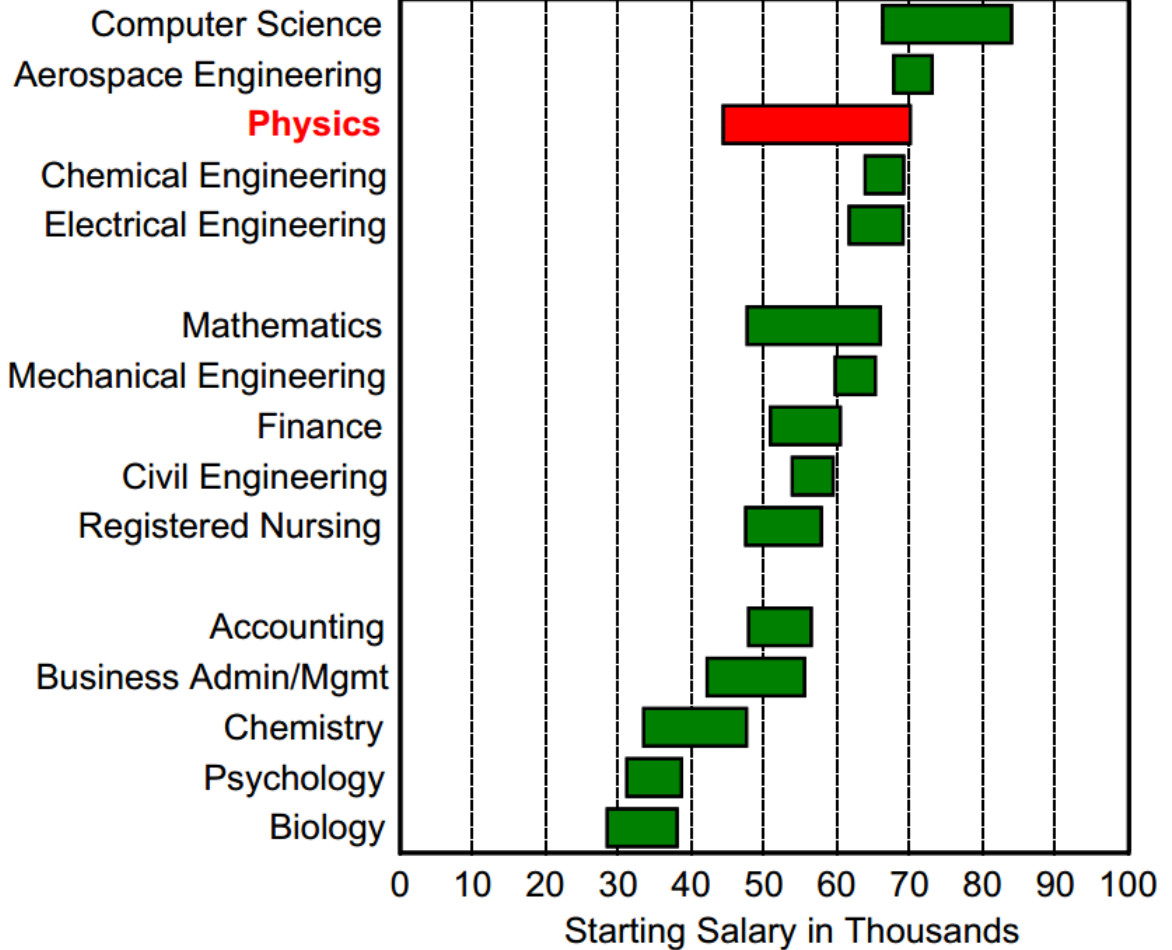
Why should I major in physics if so few job titles include the word physics?

- “Many students study physics because they enjoy it, and they find that physics is exciting and intellectually stimulating. A physics education provides a unique way of looking at problems that many employers value, a marketable set of skills, and foundational knowledge on which it is easy to build new knowledge as one’s career evolves over time.”
- “You should also know that physics bachelor’s who get hired into positions with engineering or computer science job titles get paid the same salary as those who earned bachelor’s degrees in those fields. A physics degree tells a prospective employer that you are a person who has the background, knowledge and drive to succeed in broad range of scientific or technical fields.”

What's a Bachelor's Degree Worth?

Typical Salaries for Bachelor's Degree Recipients, Class of 2015

Bachelor's Field

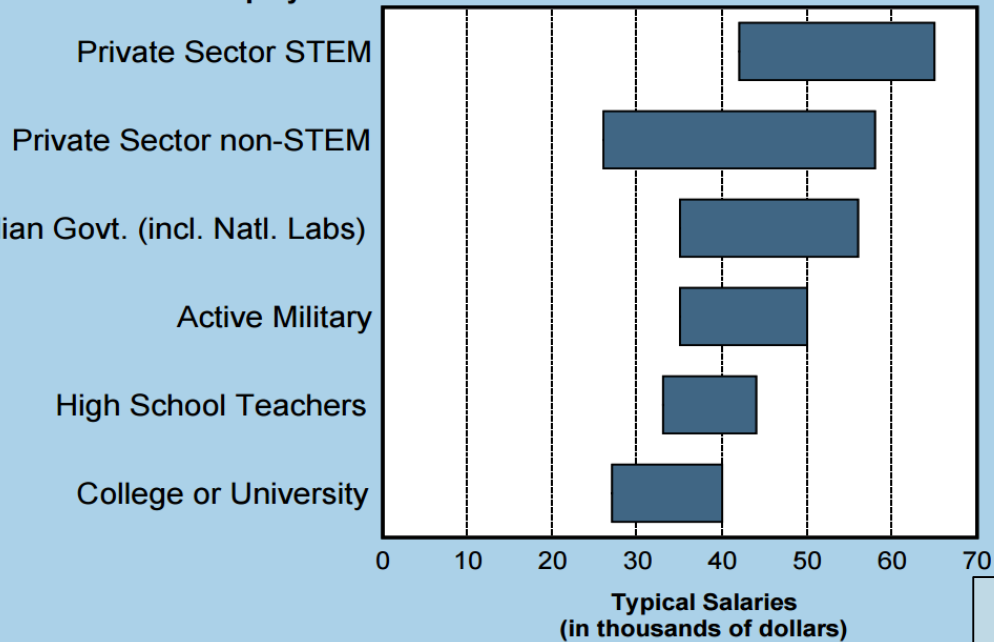


Note: Typical salaries are the middle 50%, i.e. between the 25th and the 75th percentiles.

Wide range of salaries for physicists probably because physicists are prepared to work in a wide range of fields.

Typical Starting Salaries for Physics Bachelors, Classes of 2013 & 2014 Combined

Employer

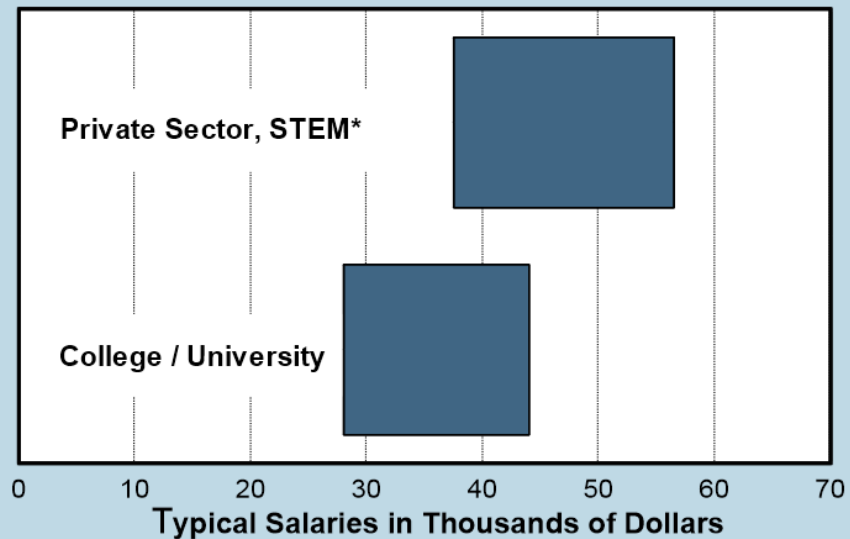


Physics

("typical" means the middle 50%, i.e. between the 25th and 75th percentiles)

Astronomy

Starting Salaries of Astronomy Bachelor's, Classes of 2010, 2011 & 2012 Combined.

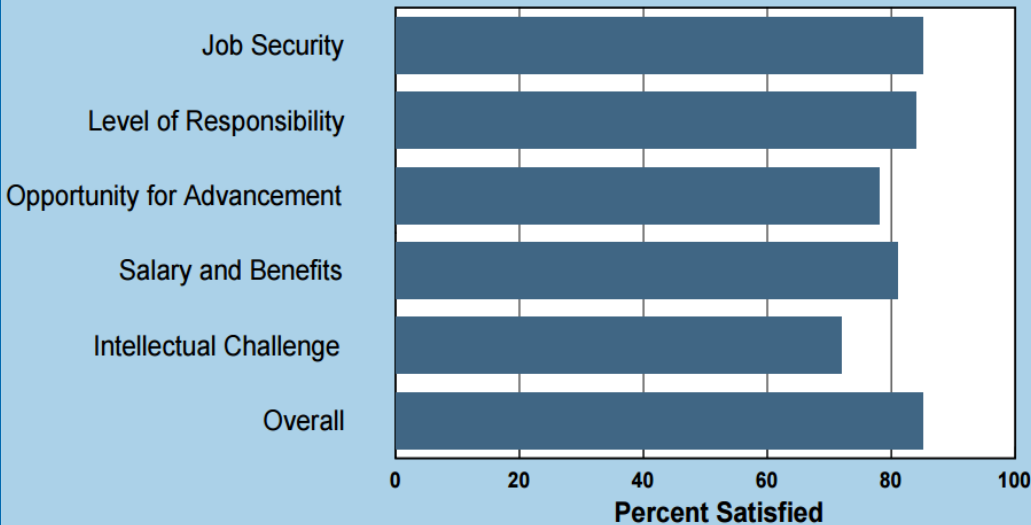


“Happiness on the job: Ranking 26 factors”

(Boston Consulting Group global survey, not just physics)

- 1 Appreciation for your work
- 2 Good relationships with colleagues
- 3 Good work-life balance
- 4 Good relationships with superiors
- 5 Company's financial stability
- 6 Learning and career development
- 7 Job security
- 8 Attractive fixed salary
- 9 Interesting job content
- 10 Company values

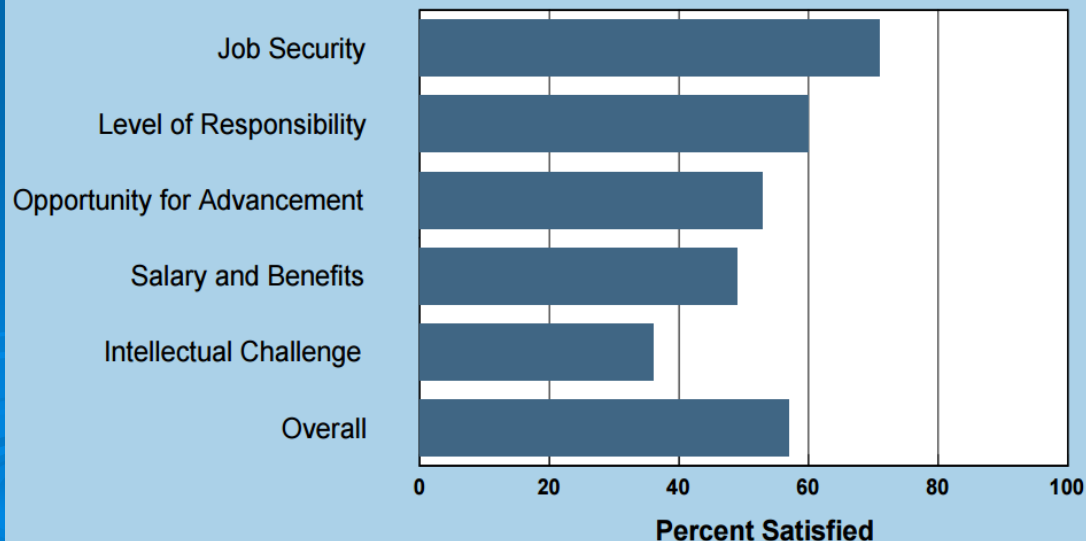
Job Satisfaction of Physics Bachelors in Private Sector STEM Positions, Classes of 2013 & 2014 Combined



Job satisfaction: B.S., Private sector STEM

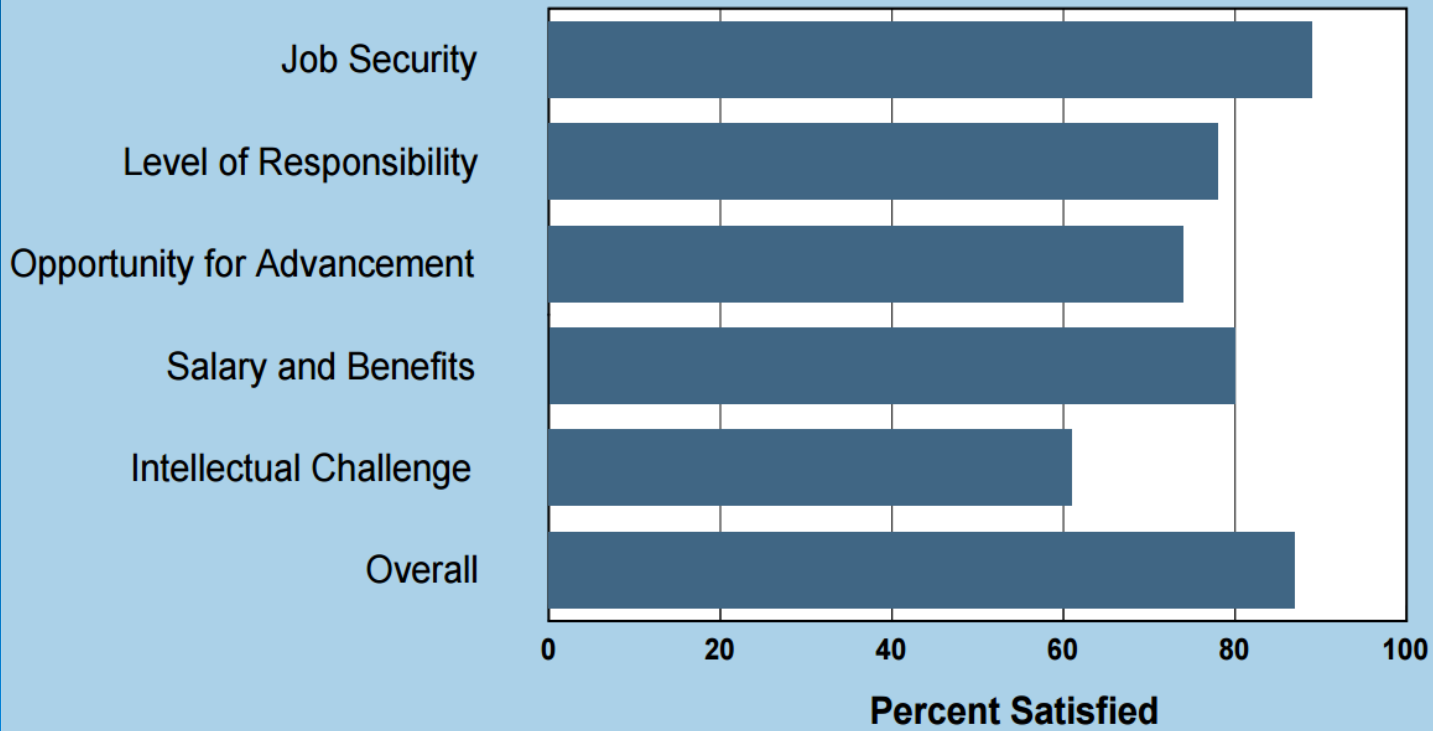
B.S., Private sector non-STEM

Job Satisfaction of Physics Bachelors in Private Sector Non-STEM Positions, Classes of 2013 & 2014 Combined



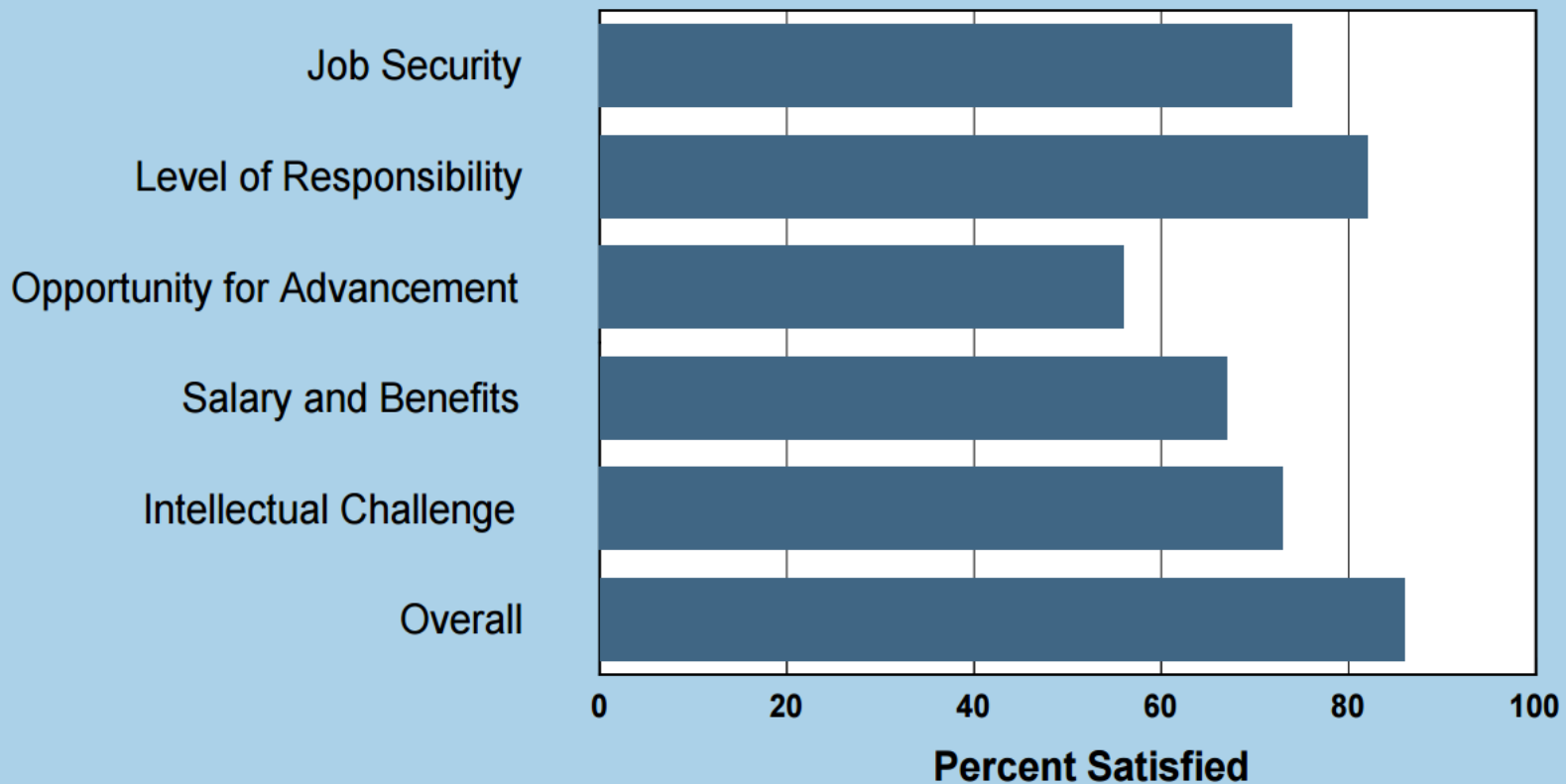
Job satisfaction: B.S., Government/National Labs

Job Satisfaction of Physics Bachelors Employed in Civilian Government or National Labs, Classes of 2013 & 2014 Combined



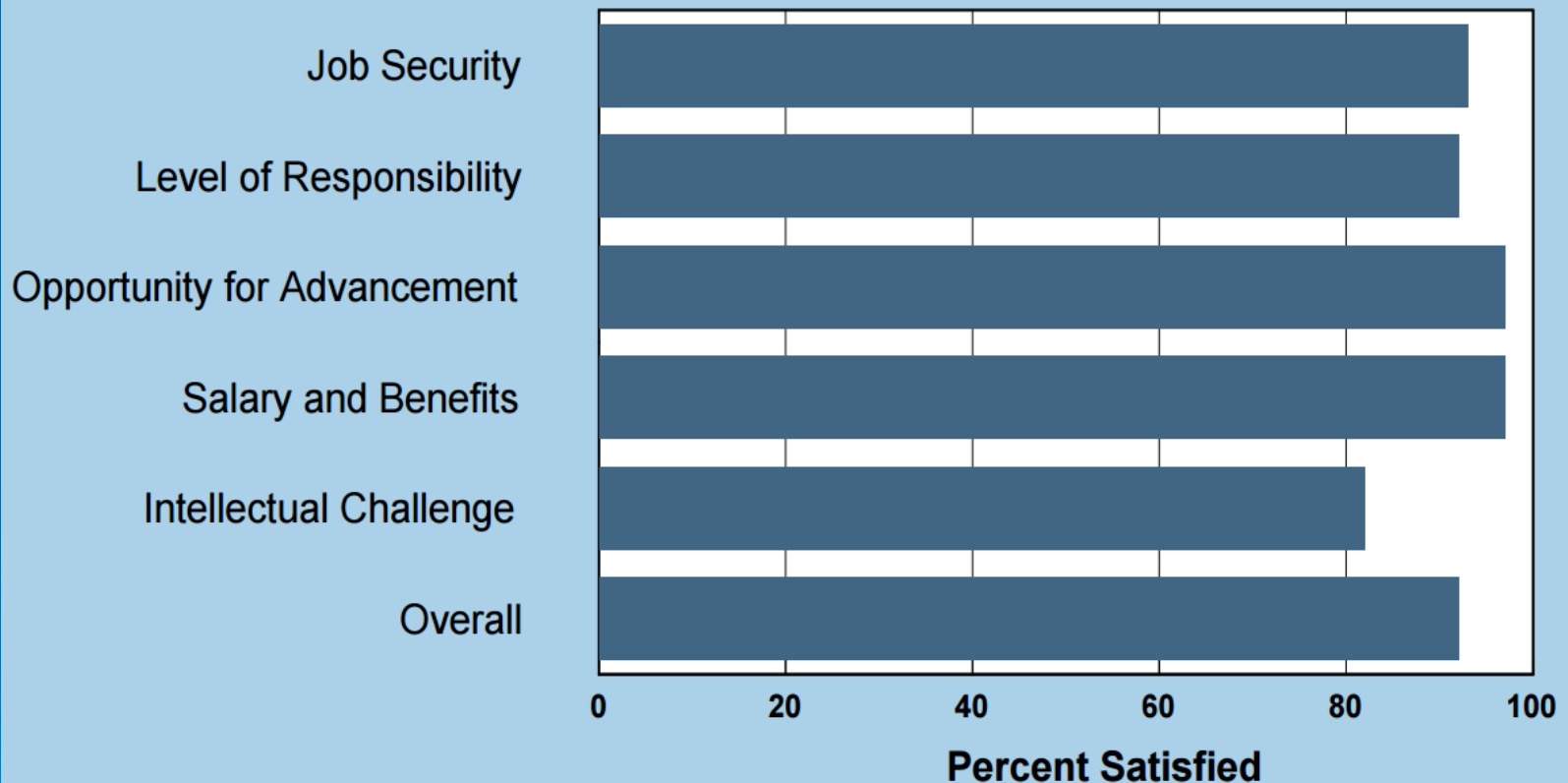
Job satisfaction: B.S., Colleges/Universities

Job Satisfaction of Physics Bachelors in Colleges & Universities, Classes of 2013 & 2014 Combined



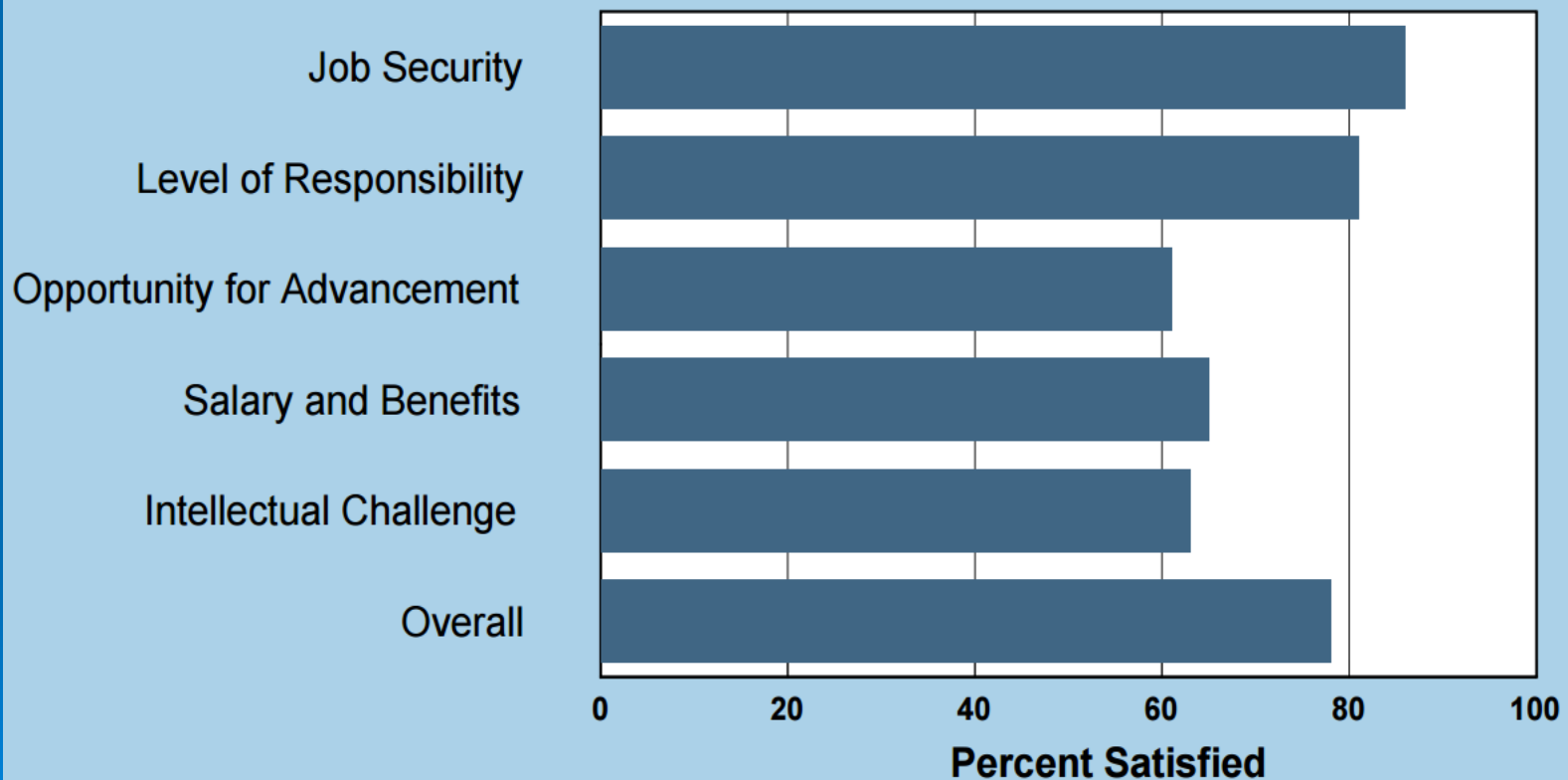
Job satisfaction: B.S., Military

Job Satisfaction of Physics Bachelors in the Active Military, Classes of 2013 & 2014 Combined



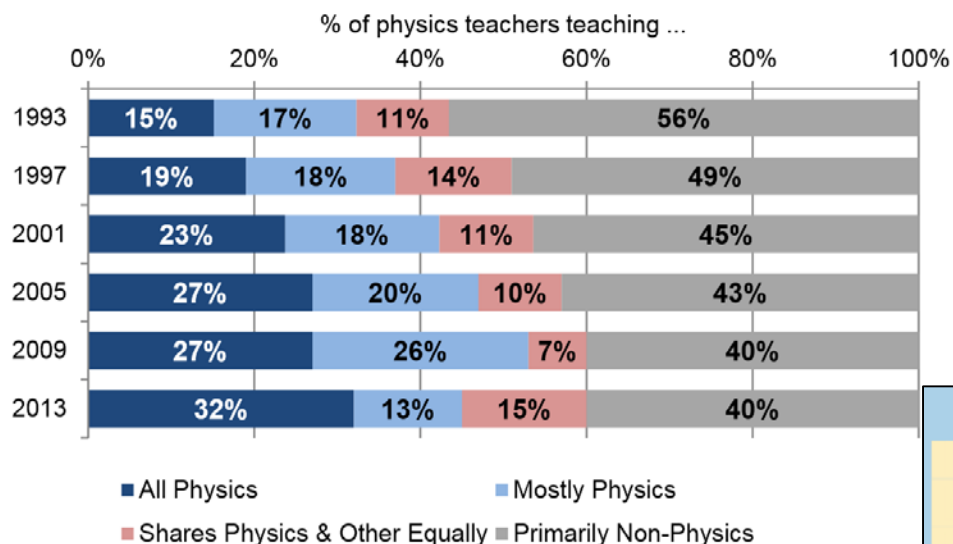
Job satisfaction: High school teaching

Job Satisfaction of Physics Bachelors in High School Teaching Positions, Classes of 2013 & 2014 Combined



Physics teachers teaching more physics

Place of Physics in Current Teaching Assignment
1987 – 2013



High School Physics Teacher* Demographics

	2013	2005	1997	1987
Estimated Number of Teachers	27,000	23,000	19,000	17,900
Median age (years)	46	46	44	41
AAPT membership (%)	24	23	25	24
Highest Degree Earned				
% with Bachelor's as highest	31	34	42	37
% with Master's as highest	63	60	54	59
% with Doctorate as highest	6	6	4	4
Physics or Physics Ed Major (%)	32	33	33	26
... in Physics(%)	24	23	22	—
... in Physics Education (but not Physics (%)	8	10	11	—
Self-described physics specialist (%)	56	57	48	—
% Women	37	30	25	23

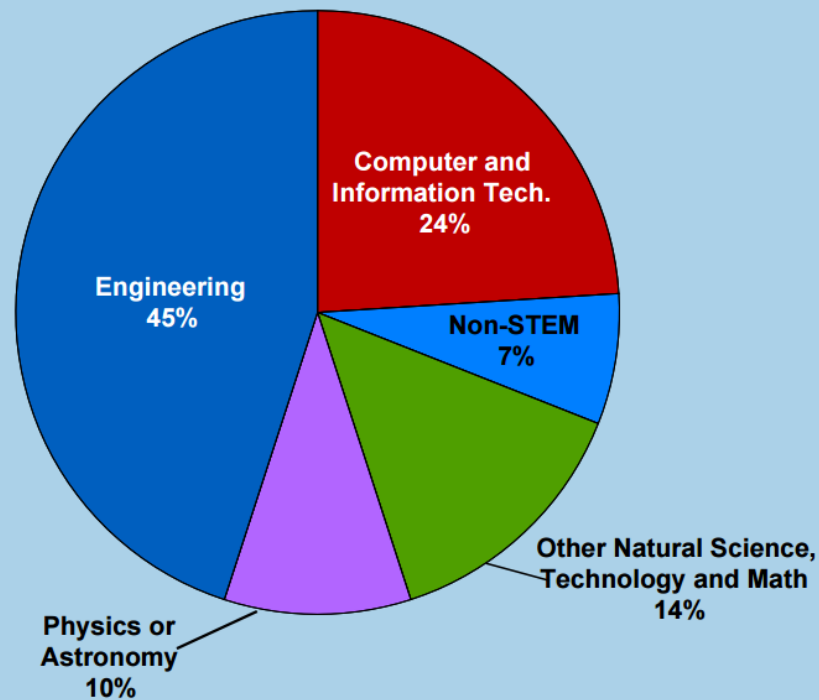
* We call anyone teaching at least one physics class a physics teacher; for many teachers, a majority of their classes are in other subjects.

M.S. Physics Career Statistics



Master's degree in Physics

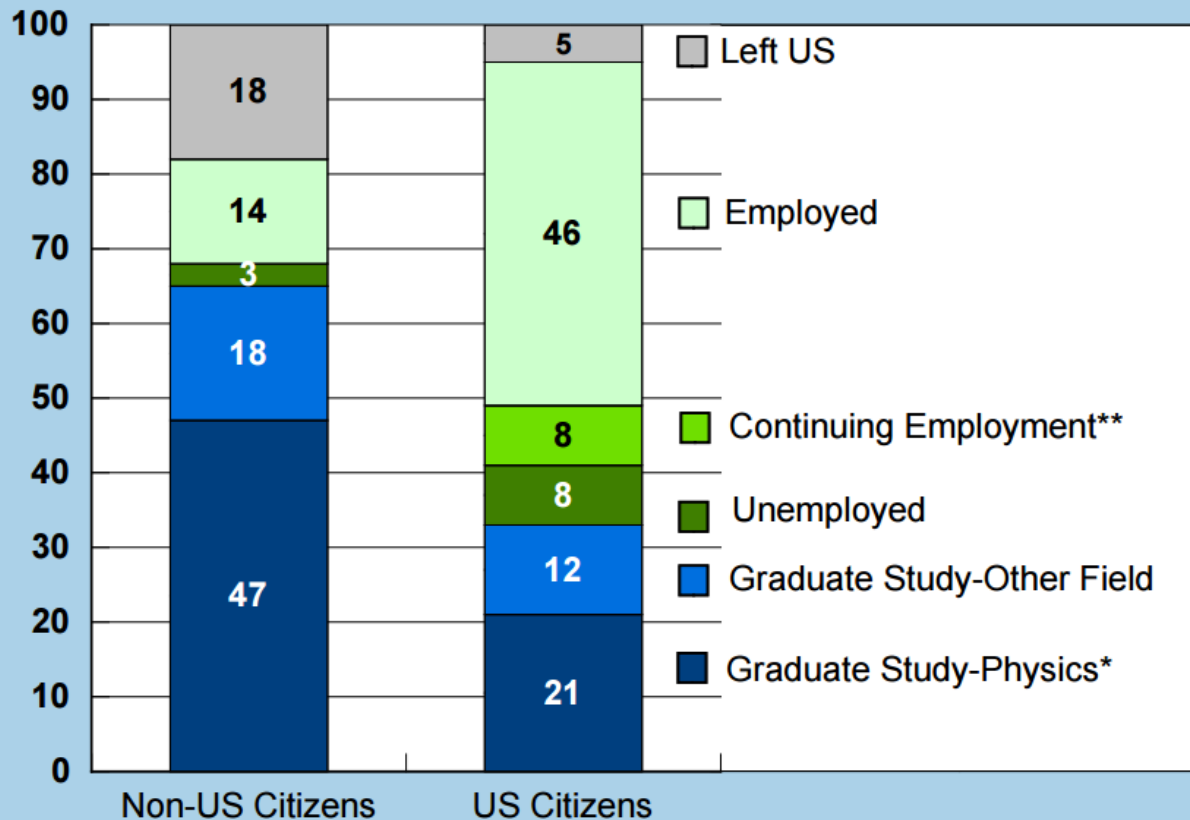
**Field of Employment of Exiting Physics Masters Working
in the Private Sector One Year After Degree,
Classes of 2012, 2013, & 2014 Combined.**



Exiting masters are individuals who, upon receiving their master's degrees, leave their current physics departments.

Status of Exiting Physics Masters by Citizenship One Year After Degree, Classes of 2012, 2013, & 2014 Combined.

Percent



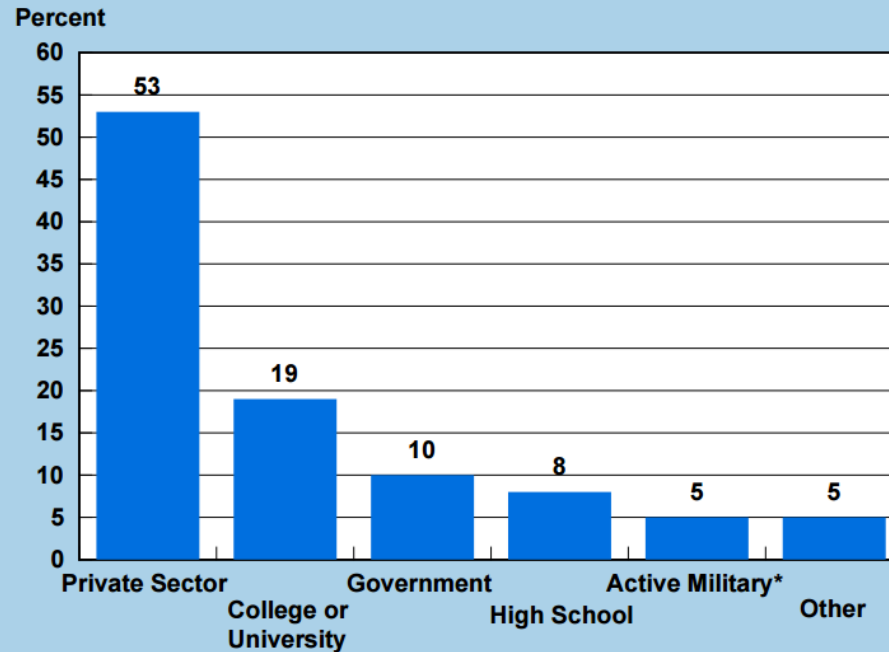
Exiting masters are individuals who, upon receiving their master's degrees, leave their current physics departments. This figure is based on the responses of 210 non-US citizens and 536 US citizens.

*Graduate study-physics: enrolled at a different institution than where master's degree was obtained.

**Continuing employment: individuals who were employed with the same employer for more than a year prior to earning their master's degrees.

Of those who are employed...

Employer Distribution of Exiting Physics Masters One Year After Degree, Classes of 2012, 2013, & 2014 Combined.

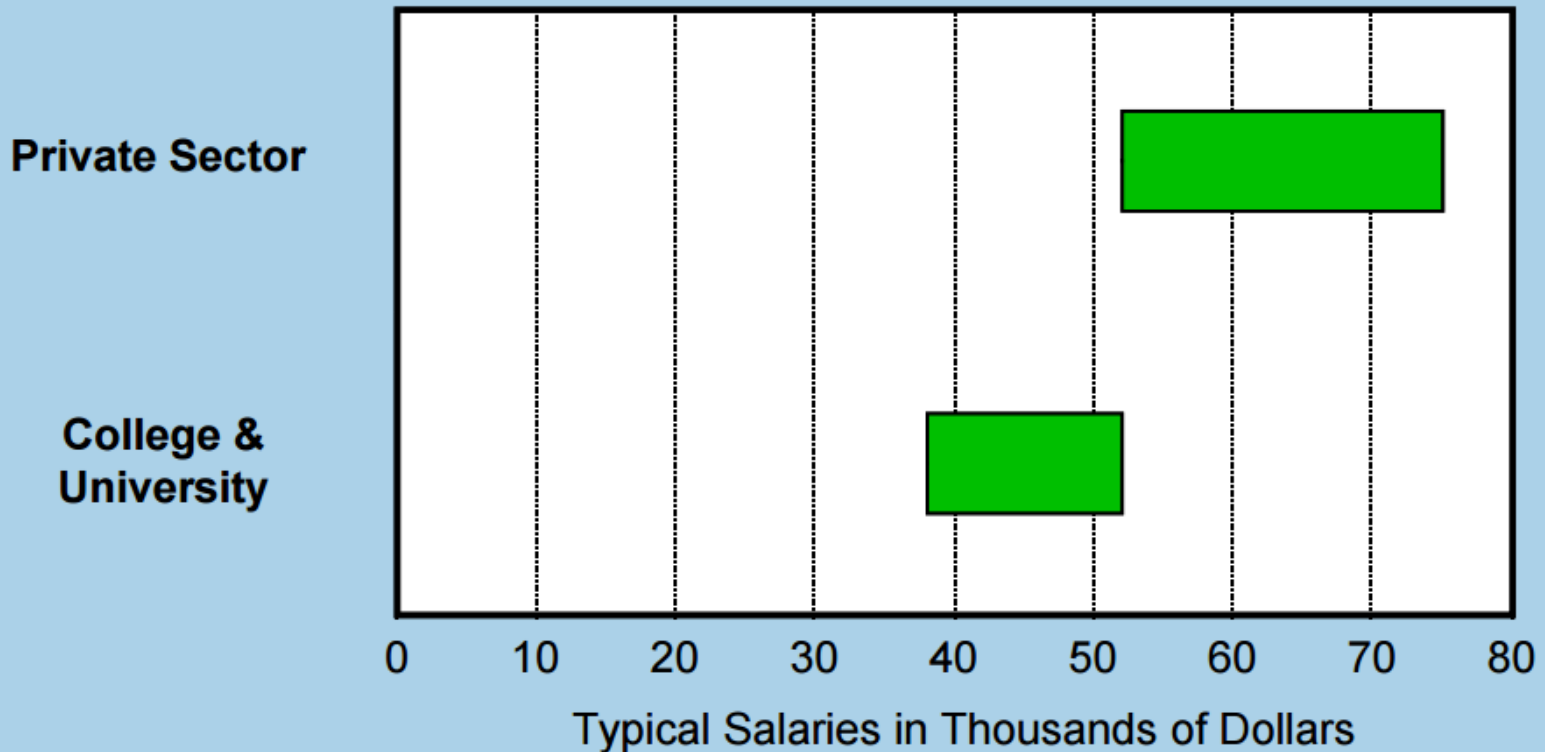


Exiting masters are individuals who, upon receiving their master's degrees, leave their current physics departments.

Figure includes US employed physics masters, including those who were employed part-time and not enrolled in a degree program and masters continuing in positions they held while pursuing their degrees. Other includes elementary and middle schools, health care facilities, and non-profit organizations. Figure based on responses from 323 individuals.

*Active military excludes masters receiving their degrees from military academies.

Typical Starting Salaries of Exiting Physics Masters One Year after Degree, Classes 2012, 2013, & 2014 Combined.



Exiting masters are individuals who, upon receiving their master's degrees, leave their current physics departments.

("typical" means the middle 50%, i.e. between the 25th and 75th percentiles)

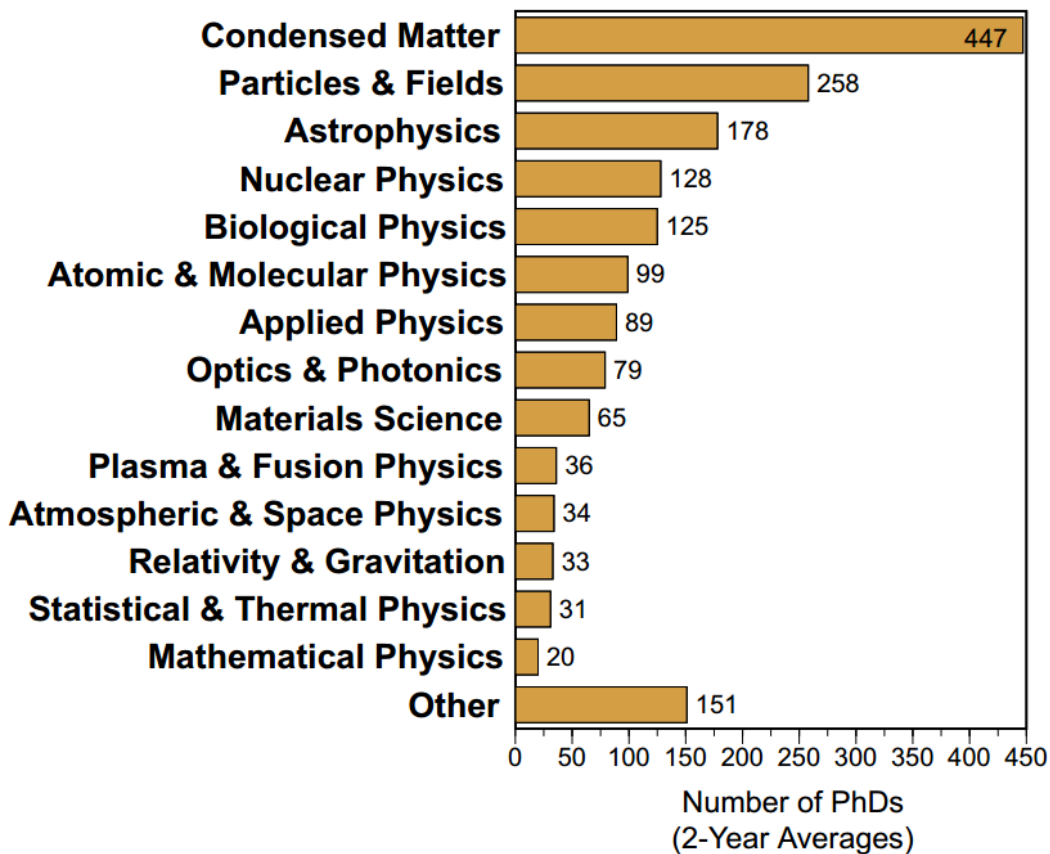
Ph.D. Physics Career Statistics



PhDs in Physics: What areas?

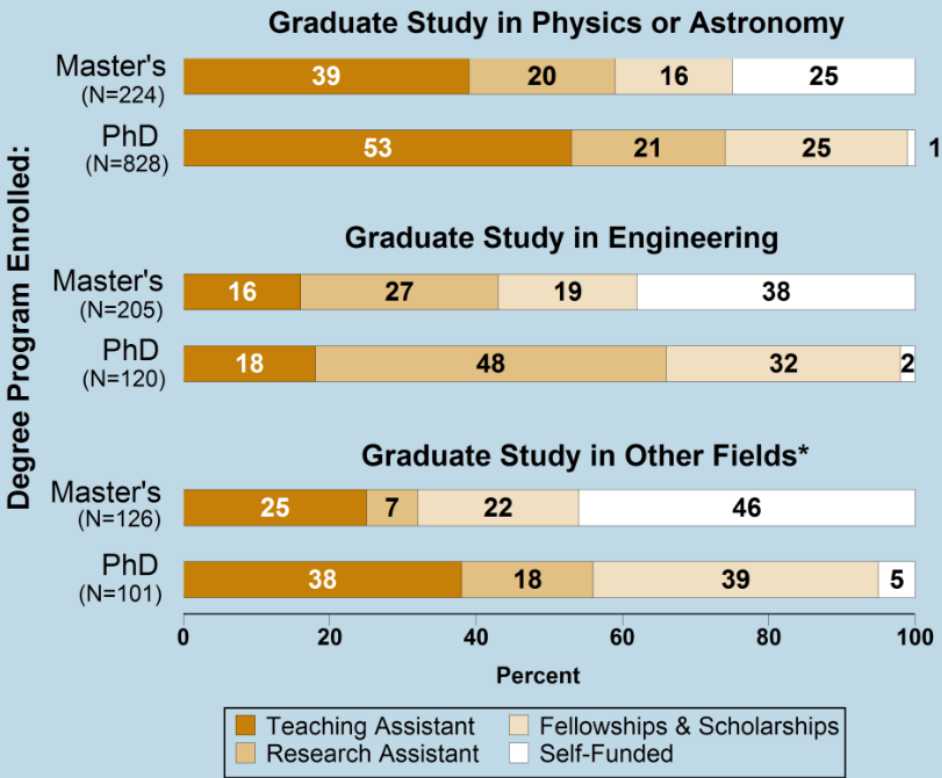
Physics PhDs Granted by Subfield

Classes of 2013 & 2014 Combined

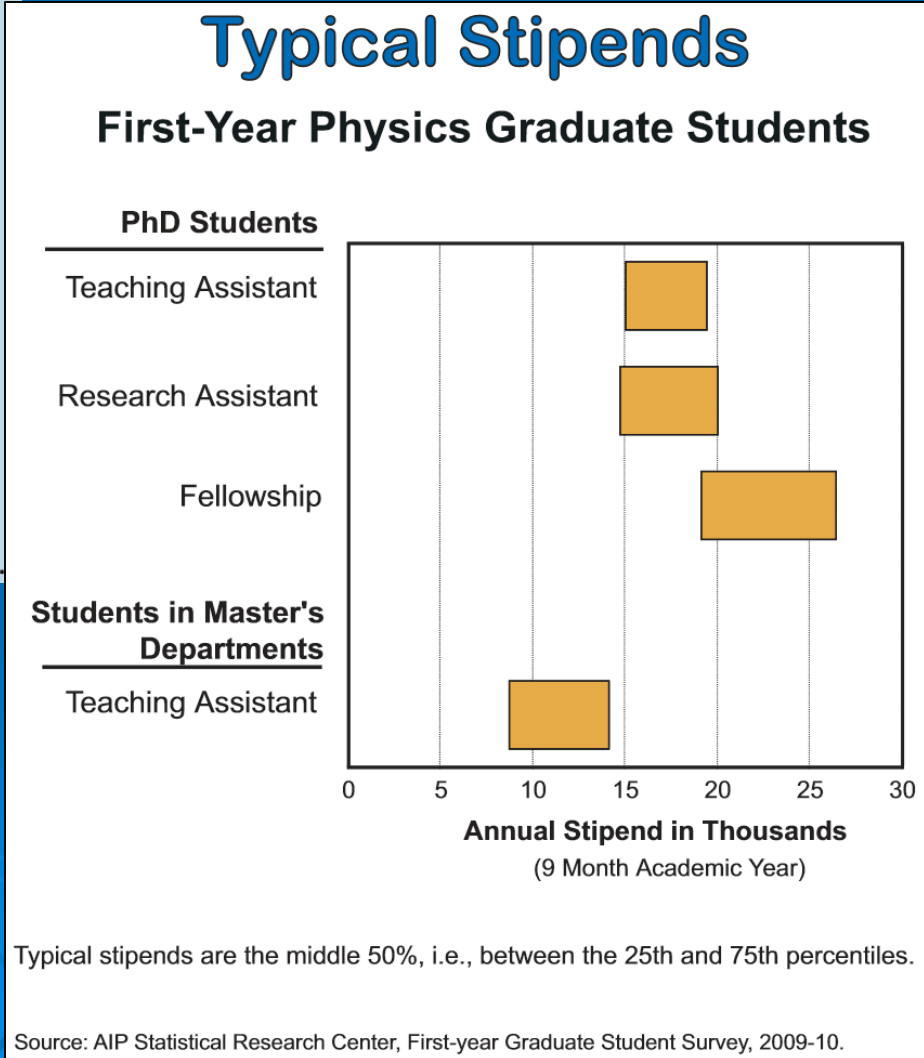


Note: Additionally, there was an average of 151 PhD astronomers from departments that offer astronomy degrees.

Primary Types of Support for Physics Bachelor's Immediately Pursuing Graduate Study, Classes of 2009 & 2010 Combined

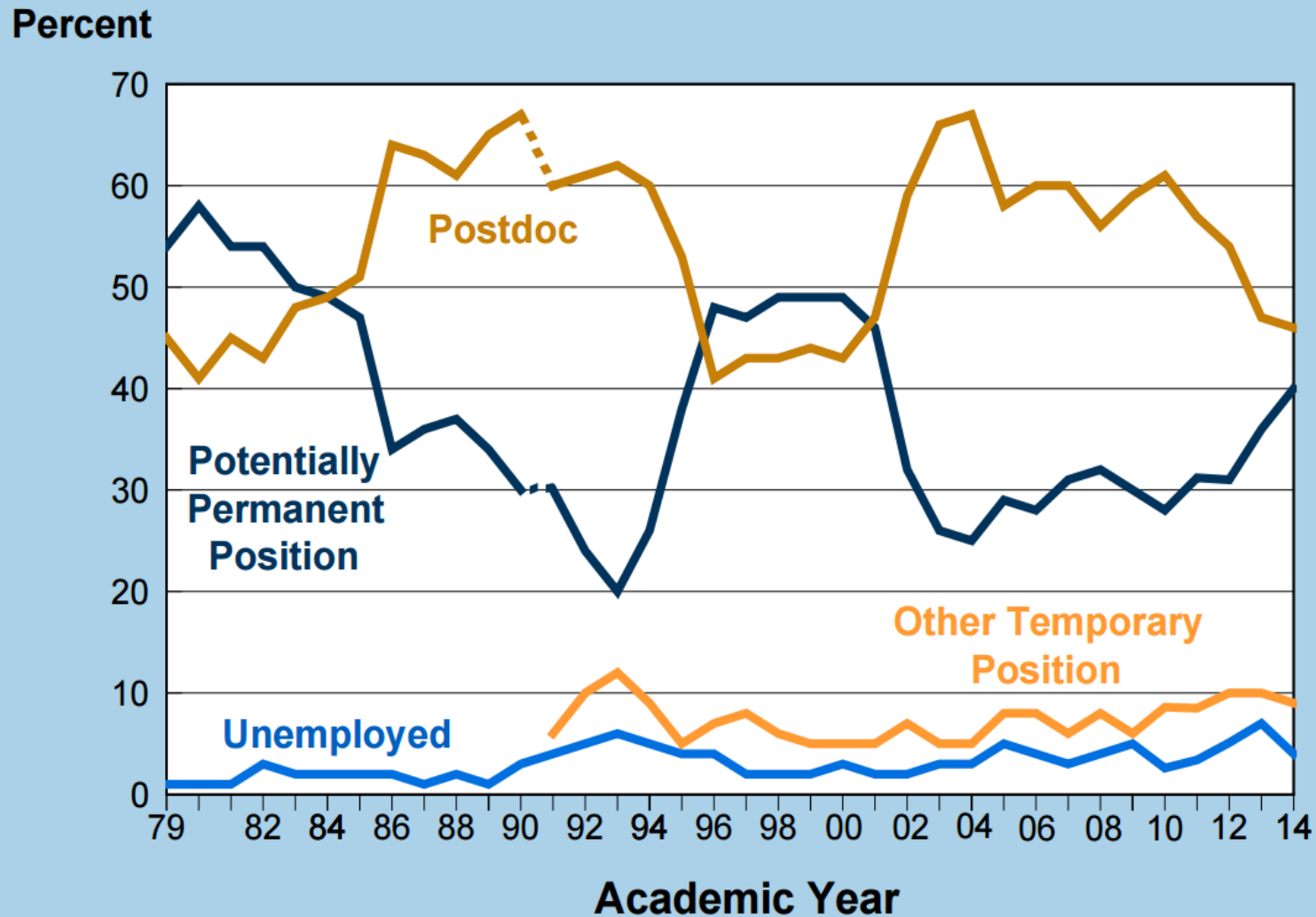


*Does not include professional degree fields such as law and medicine.

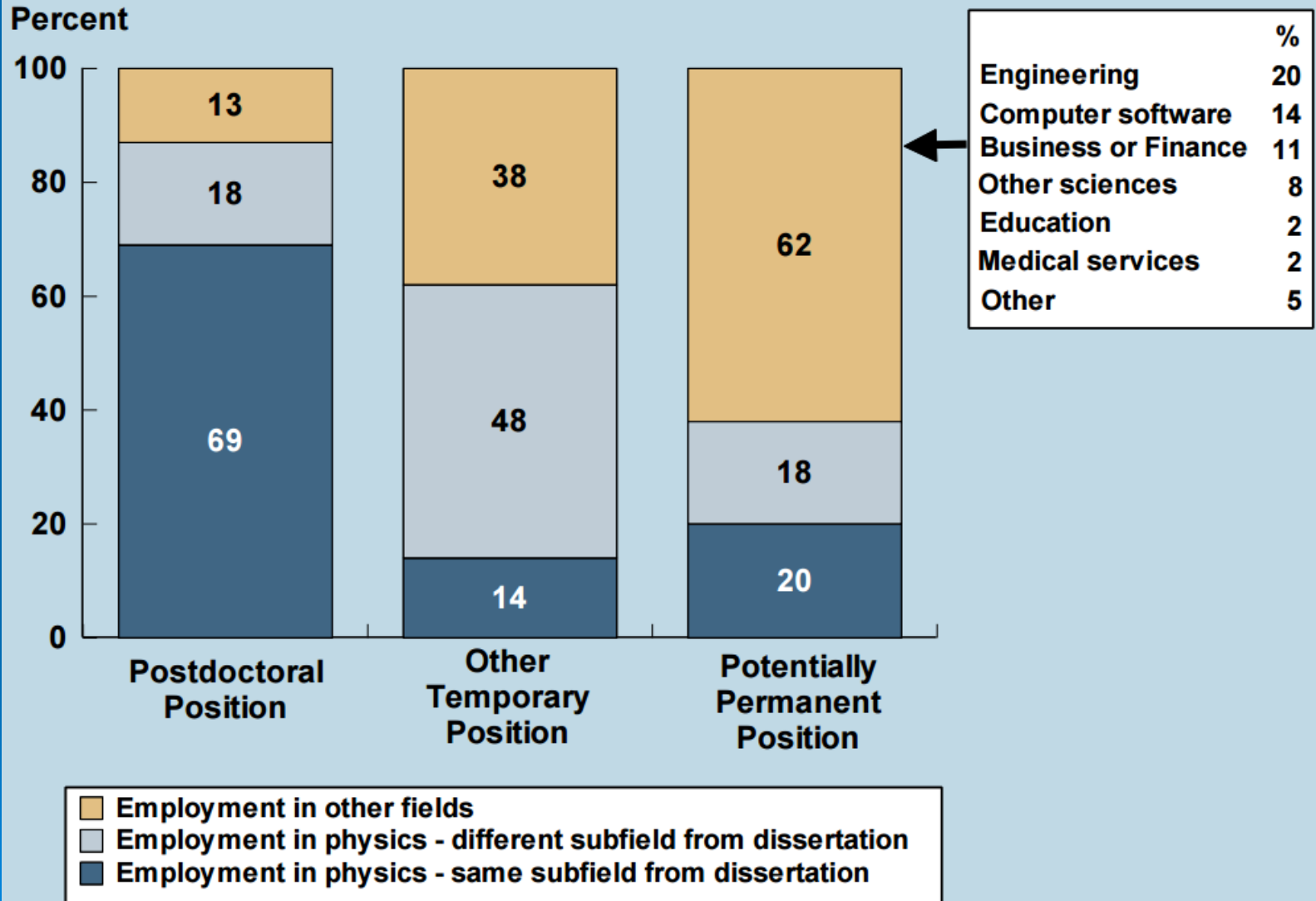


Source: AIP Statistical Research Center, First-year Graduate Student Survey, 2009-10.

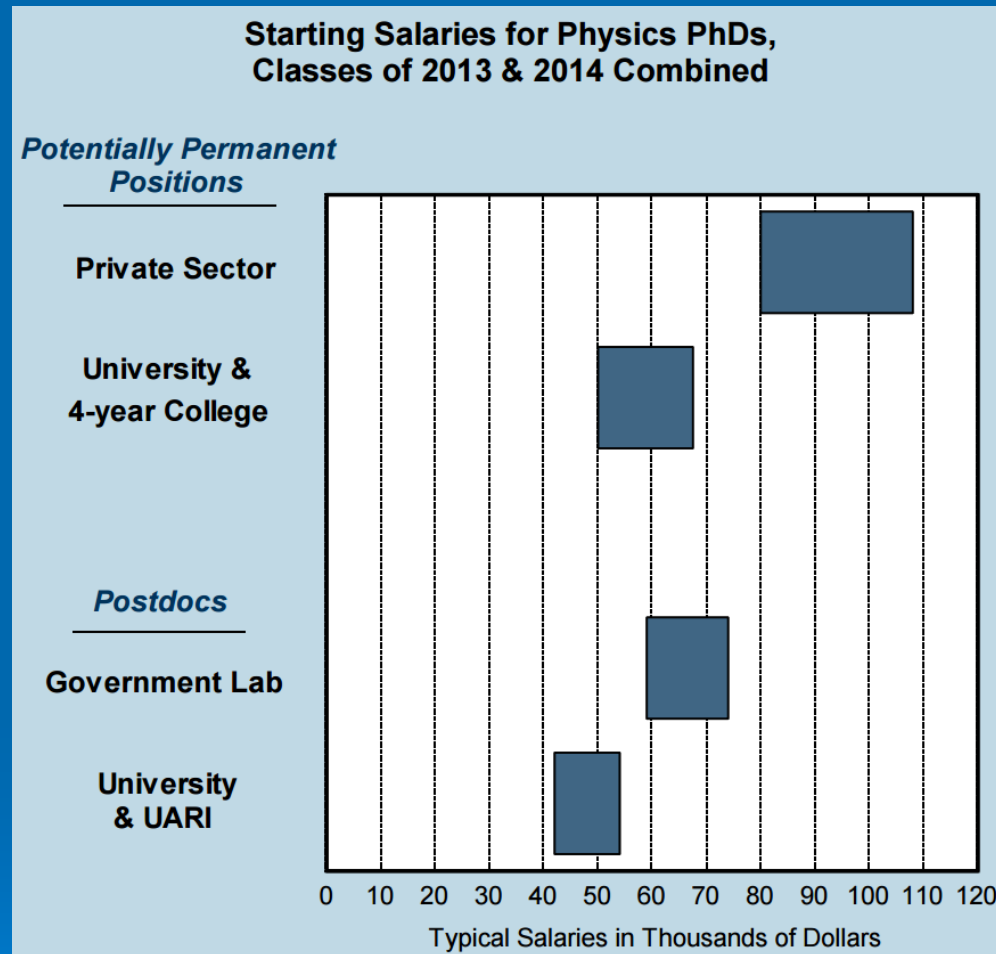
Initial Employment of Physics PhDs, 1979 through 2014.



Employment Field of Physics PhDs One Year After Degree, Classes of 2013 & 2014 Combined

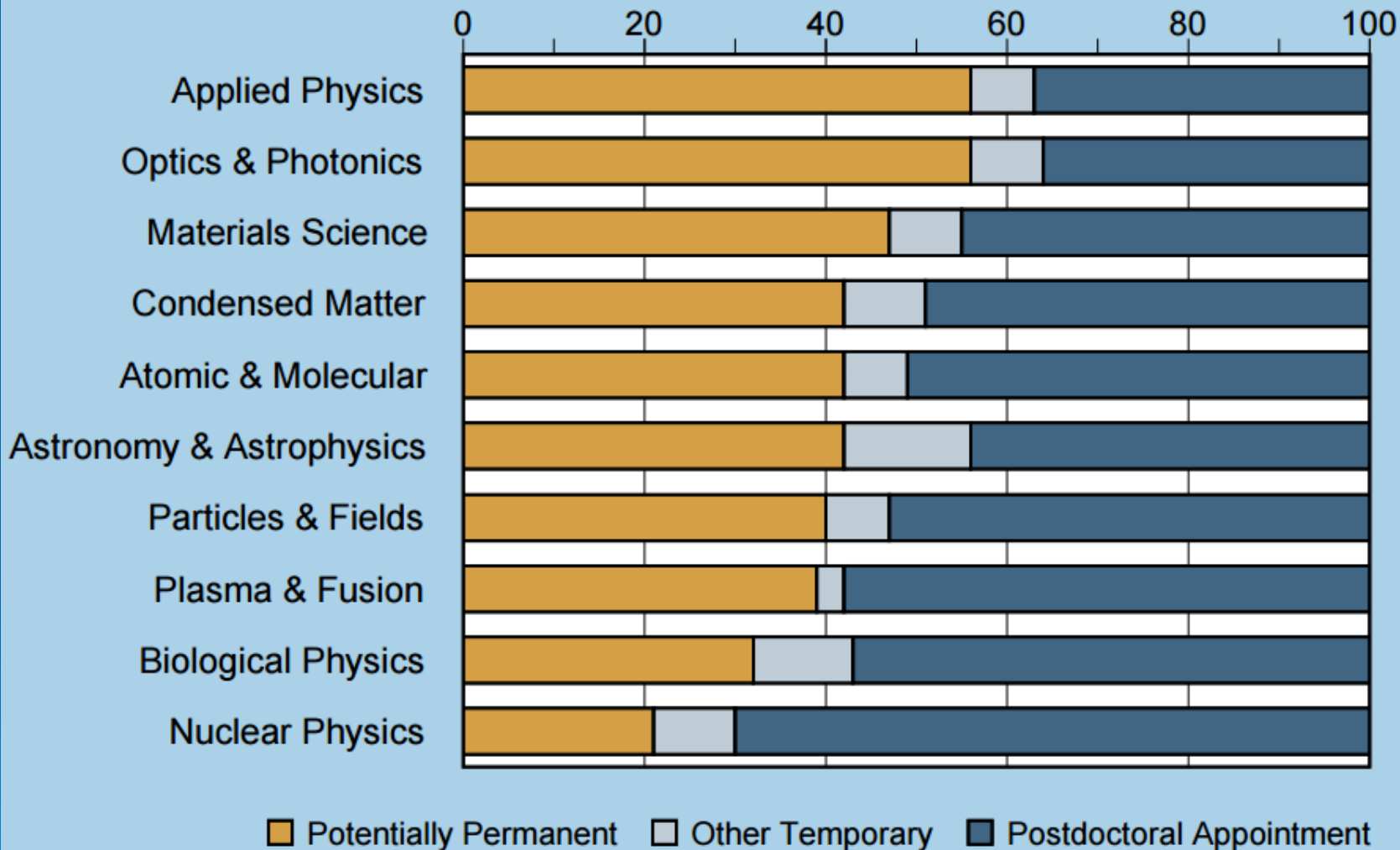


Starting salaries for Physics PhDs



("typical" means the middle 50%, i.e. between the 25th and 75th percentiles)

Initial Employment of Physics PhDs by Subfield of Dissertation, Classes of 2013 & 2014 Combined.



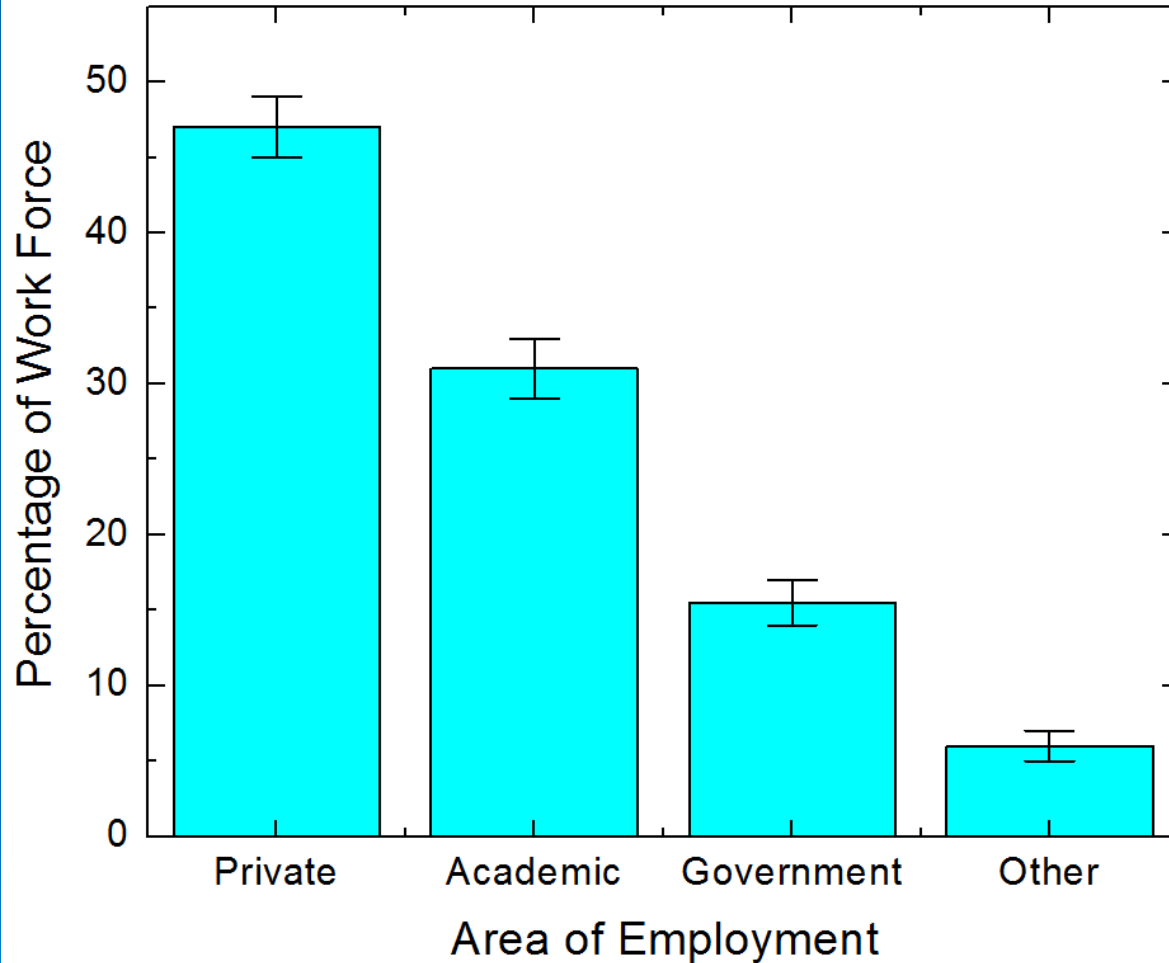
Why a postdoc?

Postdocs From the Classes of 2011 & 2012: “What Was the Most Important Reason for Taking This Temporary Position?”

	Percent
Necessary step to get desired future position	32
To obtain research experience in my field	26
To work with a particular scientist or research group	17
Could not obtain a suitable permanent position	12
To switch to a different field	5
Personal or family-related reasons	5
Visa restrictions limited my options	2
Other	1
N = 552	

Data are limited to PhDs who earned their degrees from a U.S. university and remained in the U.S.

Employment Sectors for All Employed Physics PhDs in the U.S. (about 60,000)

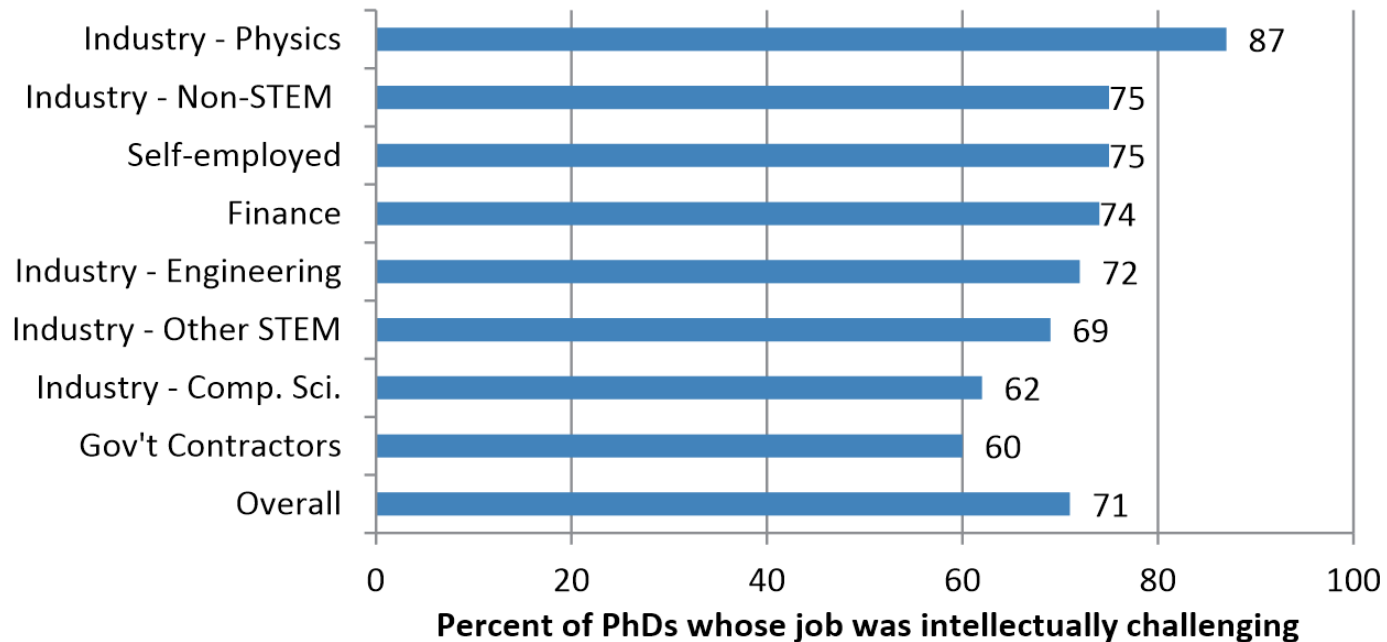


Source: Estimate provided by the American Institute of Physics, Summer 2014

Private sector PhDs, mid-career

Intellectual Challenge of Current Job for Physicists in the Private Sector by Type of Career, 2011

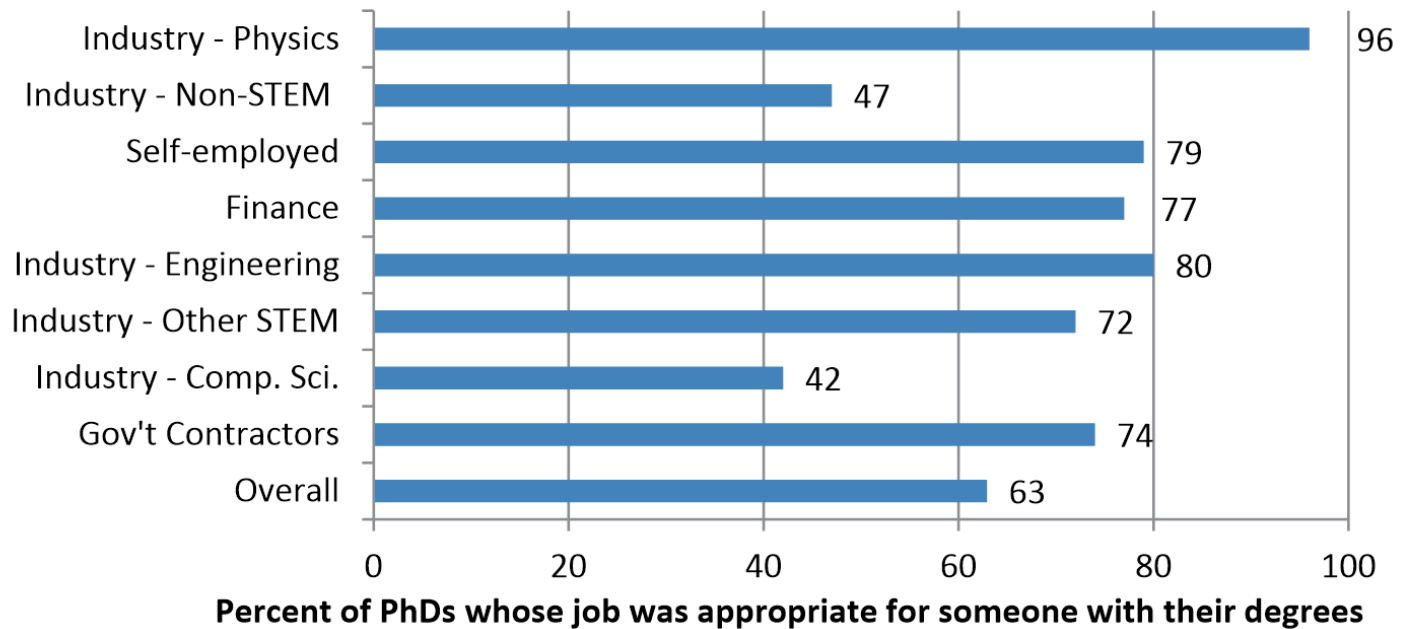
Industrially employed physicists
working primarily in / as :



Private sector PhDs, mid-career

Appropriateness of Current Job Rated by Physicists Employed in the Private Sector by Type of Career, 2011

Industrially employed physicists
working primarily in / as :



Job Titles (Private sector PhDs, mid-career)

Industrially Employed Physicists in Physics, 2011

Scientist
 Physicist
 Director
 Manager
 Engineer
 Member Technical Staff
 Vice President

Industrially Employed Physicists in Other STEM Fields, 2011

Scientist
 Engineer
 Manager
 Director
 Member Technical Staff

Industrially Employed Physicists Non-STEM Fields, 2011

Director
 President; Vice President
 Attorney
 Manager

Table 7.1: Common Job Titles of Industrially Employed Physicists in Engineering, 2011

<i>Technical Titles</i>	<i>Management Titles</i>
Engineer	Manager; Engineering Manager
Design Engineer	Director
Scientist; Physicist	President; Vice President
R&D Engineer; Systems Engineer	Chief Technology Officer

Industrially Employed Physicists Computer Science, 2011

Software Engineer
 Manager; Product Manager
 Chief Technology Officer
 Director
 Consultant
 Scientist
 Systems Engineer

Director for Gov't Contractors

Engineer
 Scientist
 Systems Engineer
 Physicist
 Director

in the Private Sector in Finance

Portfolio Manager
 Partner
 Director of Research
 Quantitative Analyst
 Financial Analyst
 Software Engineer
 Financial Software Developer
 Vice President

Private Sector as Self-Employed

Consultant
 Chief Executive Officer
 President
 Manager

All PhDs, mid-career

Type of Career	Performs Research %	Has at least Equal Say in Research Agenda %
Industry - Physics	98	47
Gov't Contractors	90	29
Self-Employed	86	54
Industry - Other STEM	83	52
Finance	80	69
Industry - Engineering	79	30
Industry – Comp. Sci.	71	35
Industry - Non-STEM	35	55
Private Sector	80	40
<i>Gov't Lab</i>	90	68
<i>Academe</i>	90	93

Respondents were asked “Is your research agenda dictated by your own expertise and intellectual curiosity or the needs of others (e.g., your clients, company, institution)?”. Data represent the responses “Exclusively my own expertise and curiosity” to “Equally both my own expertise and curiosity and the needs of others” from a 5-point scale. Data include US-educated physicists who earned their PhDs 10-15 years earlier and were working in the US in 2011.