

Physics Bachelor's Initial Employment

Data from the degree recipient follow-up survey for the classes of 2006 and 2007

Patrick Mulvey and Brandon Shindel

**REPORTS ON
PHYSICS
BACHELOR'S**

[Physics Bachelor's, One Year
Later \(May 2010\)](#)

**Physics Bachelor's, Initial
Employment (June 2010)**

[Physics Bachelor's, Demographic
Profiles \(August 2010\)](#)

Thirty-nine percent of those receiving physics bachelor's degrees in the combined class of 2006 and 2007 were employed during the winter following the year they received their degree and 4% were seeking employment. The remaining bachelor's chose to immediately pursue graduate studies in physics or another field.

Many of the higher salaries in the non-STEM (Natural Science, Technology, Engineering, and Math) category reflect the 25% of degree recipients in this category who are employed in the fields of banking or finance.

Figure 1

**Typical starting salaries for physics bachelor's,
classes of 2006 & 2007.**

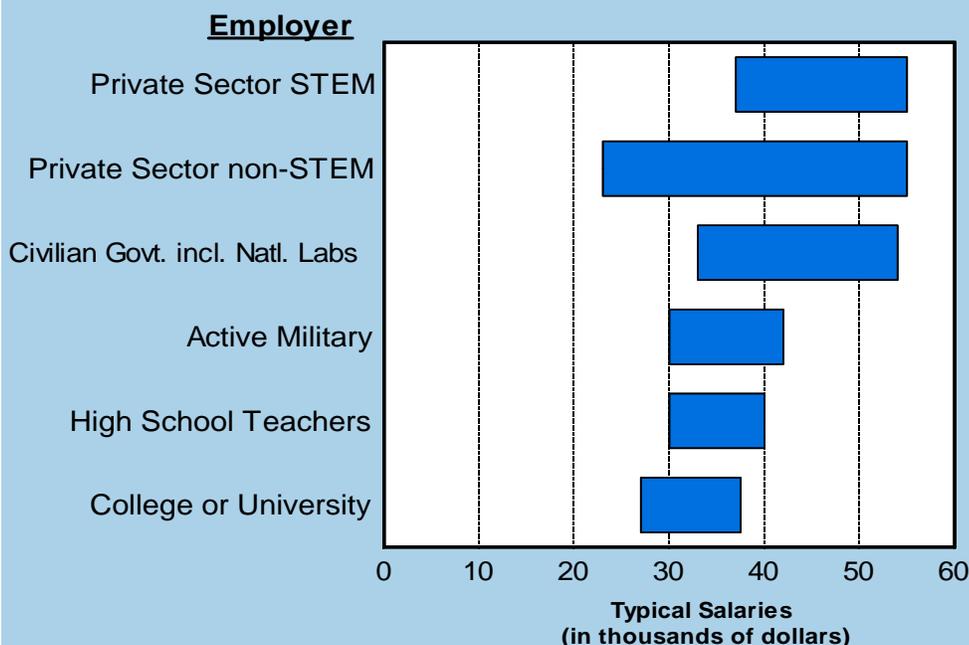


Figure includes only bachelor's in full-time, newly accepted positions.

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

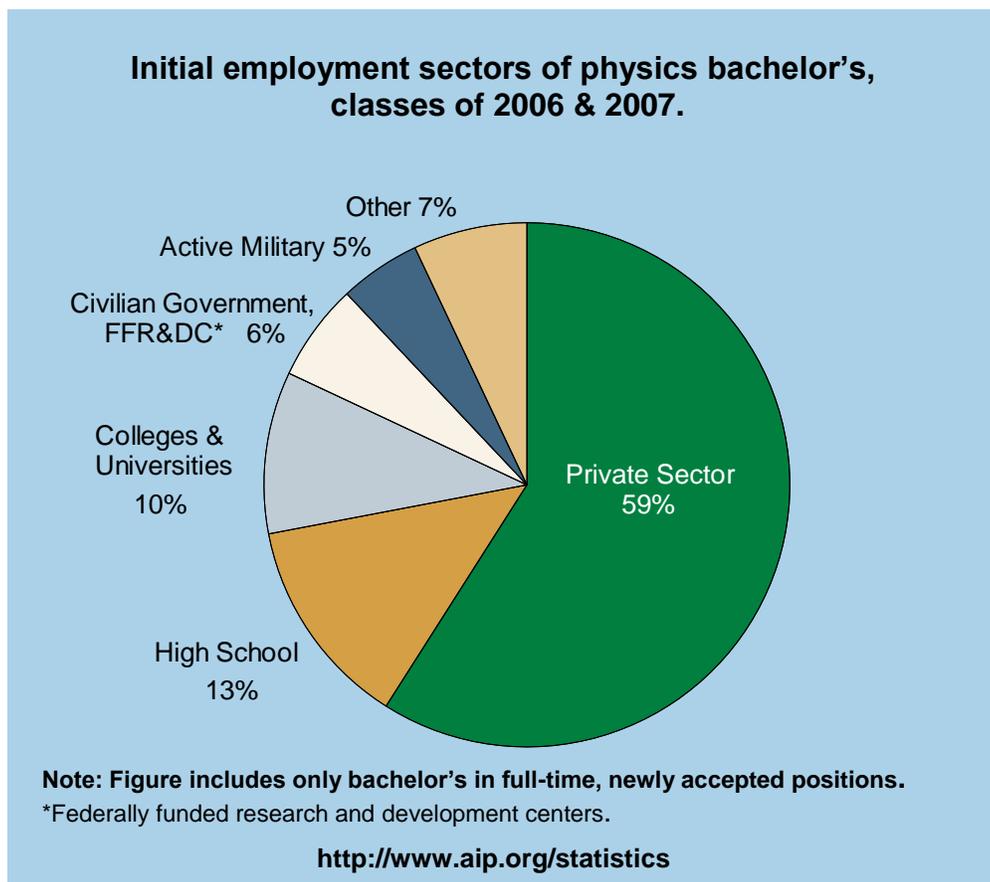
<http://www.aip.org/statistics>

*Degree recipients
working in private
sector STEM
positions receive
some of the highest
starting salaries.*

**THE 2006 AND 2007
FOLLOW-UP SURVEYS OF
PHYSICS BACHELOR'S**

Physics bachelor's are contacted in the winter following the academic year in which they receive their degree. They are asked to share their employment or graduate school experiences. These reports describe our findings.

Figure 2



The private sector continues to be the largest employer of physics bachelor's.

The data in **Figure 2** shows the distribution of employment sectors for those individuals who held employment in the winter following the year in which they received their degree.

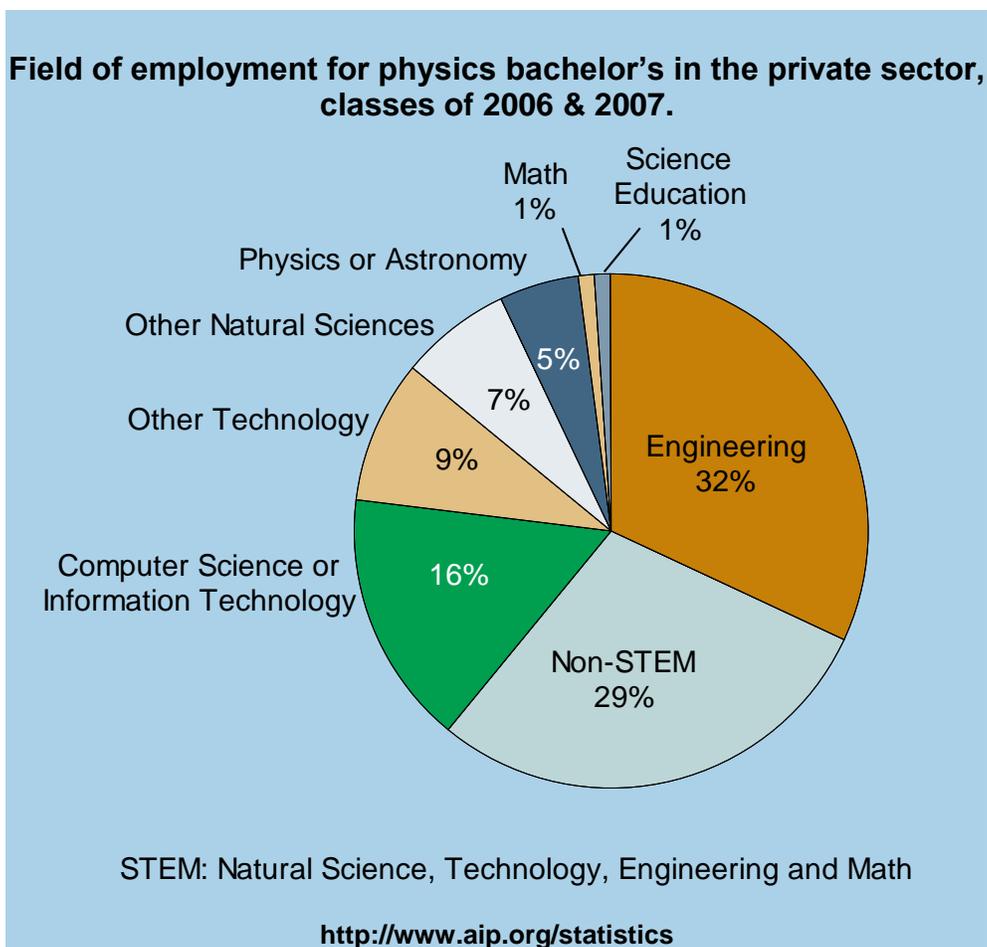
Twenty-five percent of the bachelor's who entered the workforce intended to enroll in graduate school after working for a year. In total, about half of the employed bachelor's indicated they intended to enroll in graduate school within 3 years.

Of the bachelor's who entered the workforce, 7% were continuing in positions they held prior to receiving their degree and 9% of newly employed bachelor's were working part-time. Six percent of the full-time employed physics bachelor's indicated they were also enrolled as part-time graduate students.

Men were more likely than women to have accepted employment in the private sector, 61% and 54%, respectively. Women were more likely to be employed as high school teachers (17%) than were men (11%).

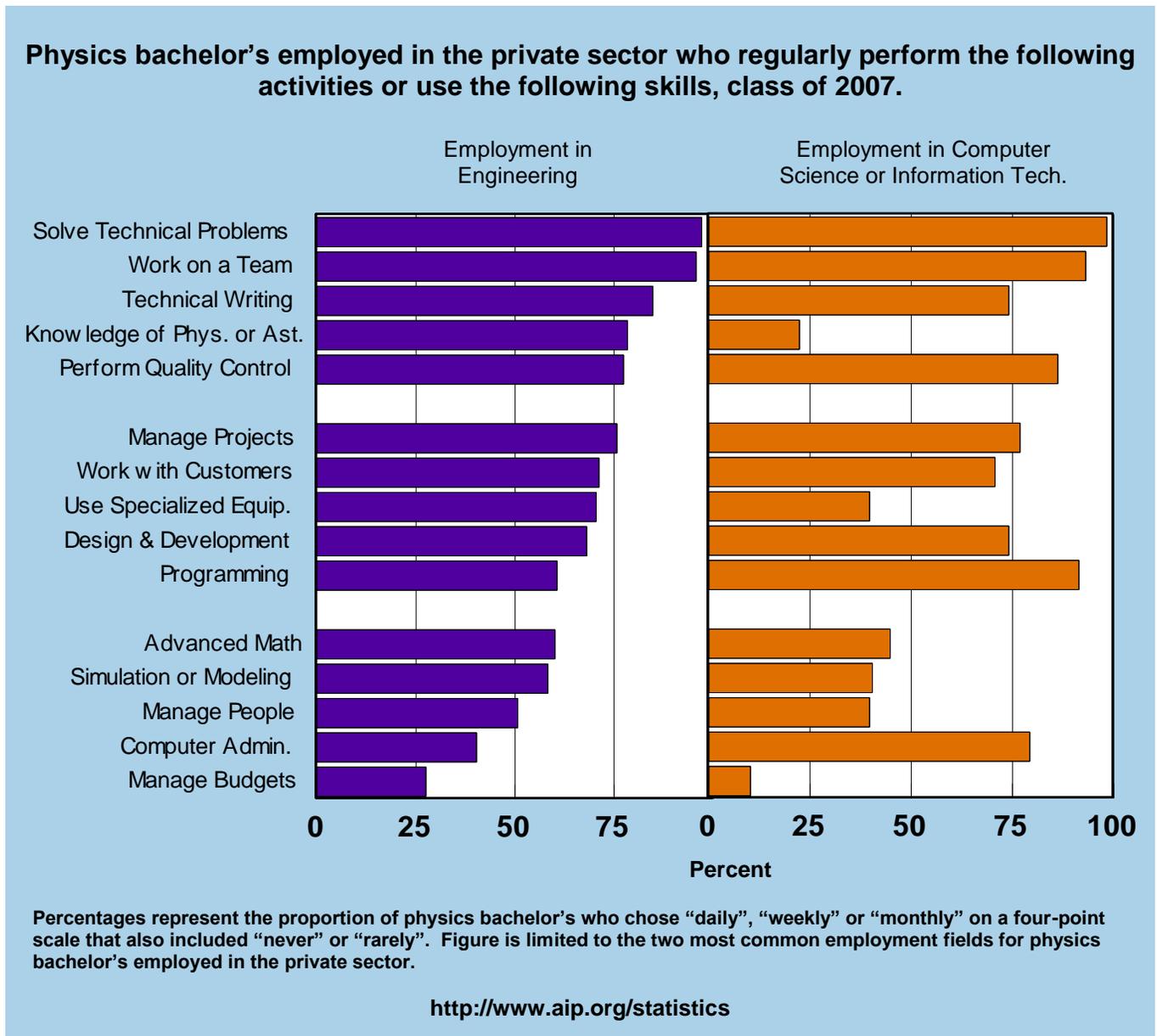
Physics bachelor's working in the private sector accepted positions with a diverse set of employers doing a wide range of activities (see **Figure 3**). Over 70% of the physics bachelor's who accepted employment in the private sector work in a STEM field. As has been true in the past, employment in the field of engineering represents the largest proportion of these private sector positions, followed by computer science and information technology positions. Non-STEM positions accounted for 29% of the new bachelor's employed in the private sector. The types of positions in this category are very diverse, with "finance" and "marketing and sales" being the most frequently cited.

Figure 3



71% of the physics bachelor's working in the private sector are employed in the fields of Natural Science, Technology, Engineering, and Math.

Figure 4



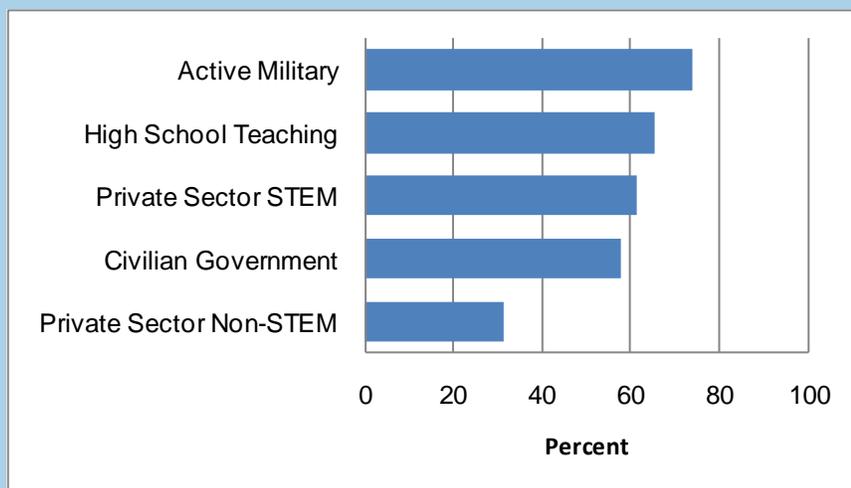
Physics bachelor's degree recipients possess a broad range of knowledge and skills. They acquire these in their physics courses, in other undergraduate coursework, and on the job. **Figure 4** compares the frequency of use of the activities and skills that are used by new physics bachelor's working in two of the most common fields within the private sector.

Excellent problem-solving abilities are frequently cited as a skill that physics bachelor's obtain while working toward their degree. This skill serves them well, with almost all (91%) of employed physics bachelor's indicating that they use their problem-solving skills regularly. Other frequently used skills that are not necessarily obtained in school include: working on a team, technical writing, quality control, and managing projects.

A physics bachelor's field of employment can have an effect on what skills or activities are most frequently required. The two largest STEM fields in which physics bachelor's work are engineering and computer science or information technology. Degree recipients employed in the field of engineering are more likely to use their knowledge of physics and to use specialized equipment than those working in computer or information technology. Bachelor's employed in computer or information technology are more likely to be doing programming or computer administration.

Figure 5

Physics bachelor's who were satisfied with the level of "intellectual challenge" in their position, classes of 2006 and 2007.



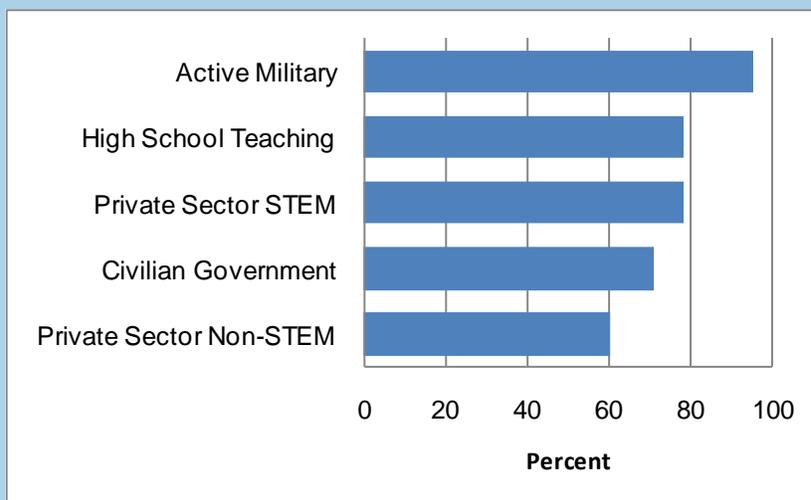
Note: Percentages represent the proportion of physics bachelor's who chose "very satisfied" or "somewhat satisfied" on a four-point scale that also included "somewhat dissatisfied" and "very dissatisfied".

<http://www.aip.org/statistics>

Bachelor's employed in the military reported the highest level of satisfaction with the amount of intellectual challenge they encountered in their positions.

Figure 6

Physics bachelor's who were satisfied with the level of "salary and benefits" in their position, classes of 2006 and 2007.



The majority of physics bachelor's are satisfied with their salary and benefits.

Note: Percentages represent the proportion of physics bachelor's who chose "very satisfied" or "somewhat satisfied" on a four-point scale that also included "somewhat dissatisfied" and "very dissatisfied".

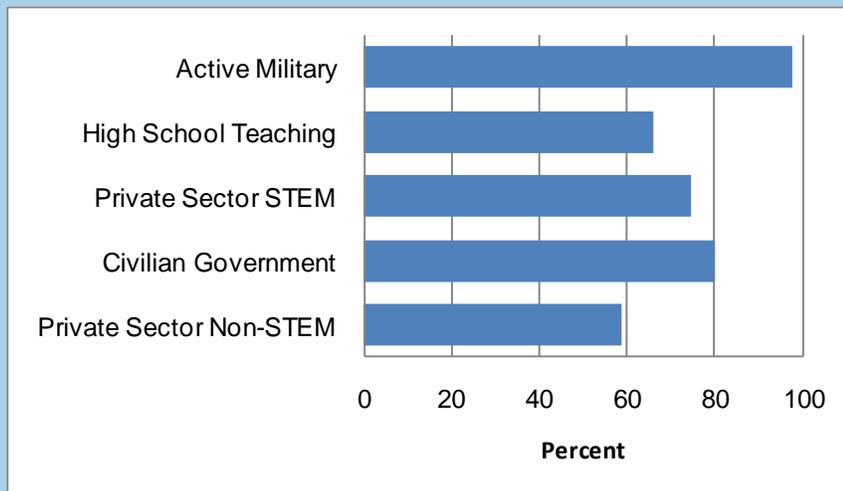
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Even though bachelor's in the active military and those employed as high school teachers receive some of the lowest starting salaries (see Figure 1), they report relatively high levels of satisfaction concerning their salary and benefits (see Figure 6). New physics bachelor's in private sector non-STEM positions work in a variety of fields and as a group had the lowest level of satisfaction with their salary and benefits.

Bachelor's employed in government sectors, both military and civilian, reported the highest levels of satisfaction with their opportunities for advancement (see Figure 7). Such positions have a clearly established framework for advancement and a history of promoting from within their respective organizations.

Figure 7

Physics bachelor's who were satisfied with the level of "opportunities for advancement" in their position, classes of 2006 and 2007.



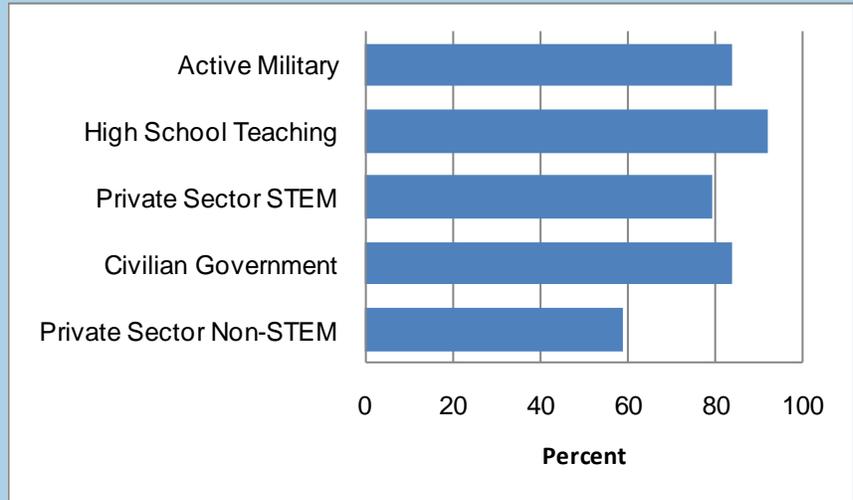
Note: Percentages represent the proportion of physics bachelor's who chose "very satisfied" or "somewhat satisfied" on a four-point scale that also included "somewhat dissatisfied" and "very dissatisfied".

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Bachelor's employed in the military were the most satisfied with their opportunities for advancement.

Figure 8

Physics bachelor's who were satisfied with the "level of responsibility" in their position, classes of 2006 and 2007.



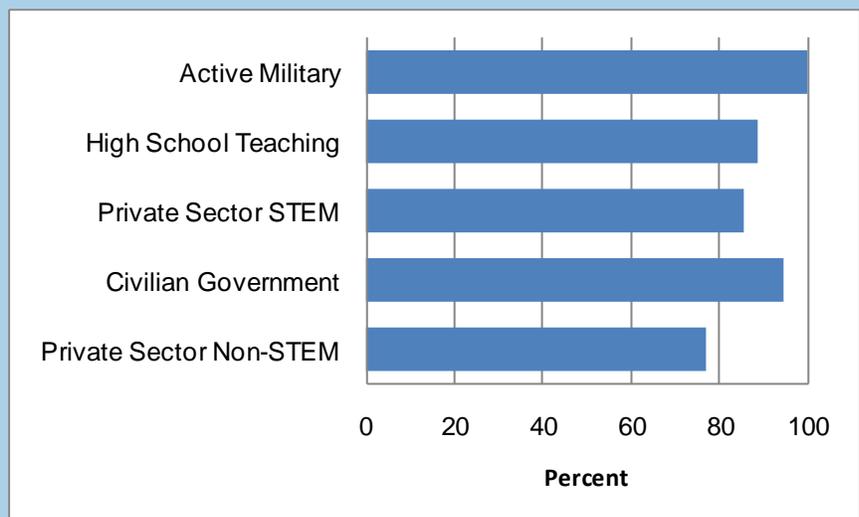
Satisfaction with the level of responsibility in their position was high in all sectors with the exception of private sector non-STEM.

Note: Percentages represent the proportion of physics bachelor's who chose "very satisfied" or "somewhat satisfied" on a four-point scale that also included "somewhat dissatisfied" and "very dissatisfied".

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Figure 9

Physics bachelor's who were satisfied with the level of "job security" in their position, classes of 2006 and 2007.



More than 80% of new physics bachelor's were satisfied with the level of job security in their positions.

Note: Percentages represent the proportion of physics bachelor's who chose "very satisfied" or "somewhat satisfied" on a four-point scale that also included "somewhat dissatisfied" and "very dissatisfied".

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Sector Profiles

Private Sector

Over half (59%) of the bachelor's in the degree classes of 2006 and 2007 accepted employment in the private sector. They held positions with a wide range of employers, including large hi-tech companies, defense contractors, utilities, and smaller companies involved with manufacturing, retail, and food industries.

STEM Positions: Seventy-one percent of the bachelor's employed in the private sector worked in a STEM field. The largest group of STEM employed bachelor's worked in the field of engineering, many of whom were employed at large government contractors or involved in manufacturing. The vast majority of these bachelor's had the word "engineer" in their job title.

The next largest STEM field bachelor's were employed in was computer science or information technology. These bachelor's worked for a diverse set of employers, including a larger group of companies involved in IT and software development. Many of their job titles included permutations of software developer, software engineer, and programmer.

Bachelor's also worked as IT staff or used their technical skills and background to assist organizations doing a wide range of activities. Some of these individuals had work activities that involved quality control, testing, and research and had titles that included "technician" and "analyst".

To see a state-by-state listing of some of the companies that have recently hired new physics bachelor's into STEM positions visit [Who's Hiring Physics Bachelor's](#)

Non-STEM: Nearly 30% of the bachelor's who worked in the private sector indicated their positions were not in a STEM field. These positions varied greatly, with about a quarter working in the field of finance, many with the job title of analyst. A significant fraction of the non-STEM industry positions were in the fields of marketing, sales, or retail, which often involved scientific equipment. In a few cases, bachelor's accepted employment as an associate at a department store or in the food service industry where they were frequently managers.

High School Teachers

Physics bachelor's who became high school teachers were often responsible for teaching several subjects. About 70% of the new teachers were teaching at least one physics class. According to the AIP 2005 Nationwide Survey of High School Physics Teachers, 44% of high school physics teachers taught physics all or most of the time. The balance of their teaching load was primarily in chemistry, biology, and math. New physics bachelor's holding teaching positions reported some of the highest levels of satisfaction with their positions.

One third of these new high school teachers had a physics education concentration. The reasons cited for choosing high school teaching as a career varied, but the most frequently cited influence was their own high school physics teacher.

Civilian Government

This employment sector included degree recipients working for federal, state, and local governments. In the classes of 2006 and 2007, about 40% of the bachelor's working for a civilian government employer worked at a national lab such as Lawrence Berkeley National Laboratory. Virtually all of the degree recipients employed at a national lab worked in a STEM field, with physics being the most frequently cited. About half of those employed at a national lab planned to enroll in graduate school after working for a year.

Many of the remaining government positions were bachelor's working as civilians with one of the branches of the armed services. Degree recipients also accepted positions with federal agencies such as the US Patent and Trademark Office and in a diverse set of positions with local and state governments.

Active Military

Physics bachelors found employment in all branches of the armed services. While some were graduates from one of the service academies or military colleges, most were not. Almost all bachelor's employed in the military entered as officers with a rank of second lieutenant or the equivalent. These bachelor's had a broad range duties, including working as engineers managing nuclear power generation, training to become pilots, developing combat tactics, and as platoon leaders. About half of the bachelor's employed with the military planned to continue such employment for at least 10 years.

College and University

For many new bachelor's, accepting employment with a college or university was only a transitory position. The majority (75%) were employed at the same institution at which they received their undergraduate degree, and about half planned to enroll in graduate school the following academic year with an additional third planning to enroll within 3 years.

Almost all (91%) worked in a STEM field, with over a third indicating they worked in the field of physics or astronomy. Many of the new bachelor's held positions with titles of research assistant or laboratory technician.

Other

Bachelor's also accepted employment in other sectors, with the majority working in a STEM field or as an educator. These other sectors included elementary and middle schools, hospitals and medical centers, and non-profit organizations.

Survey Methodology

Each fall, the Statistical Research Center conducts its Survey of Enrollments and Degrees, which asks physics and astronomy departments to provide information concerning the numbers of students they have enrolled and counts of recent degree recipients. In connection with this survey, we ask for the names and contact information for their recent degree recipients. This degree recipient information is used to conduct our follow-up survey in the winter following the academic year in which they received their degree.

Recent degree recipients can be very difficult to reach because they tend to move after receiving their degree. Many times the department does not have accurate contact information for their alumni. To assist us in determining outcome information and to help obtain updated contact information, we contact the advisors of non-responding degree recipients.

The follow-up surveys for the classes of 2006 and 2007 were administered with both a web-based and paper form. The majority of our respondents answered via the online survey. The physics classes of 2006 and 2007 consisted of 5,273 and 5,755 bachelor's, respectively. We received post-degree information on about 40% of these degree recipients. Four percent of the bachelor's were pursuing employment or graduate study outside the US and were not included in the analysis.

We thank the many physics and astronomy departments, degree recipients, and faculty advisors who made this publication possible.

Physics Bachelor's One Year Later

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New physics bachelor's follow two main career paths: continuing their education at the graduate level or entering the workforce. Over a third of the combined degree classes of 2006 and 2007 immediately enrolled in a physics or astronomy graduate program with another fifth entering a graduate or professional program in another field.

Figure 1

**Initial status after degree for physics bachelor's classes of
2006 & 2007.**



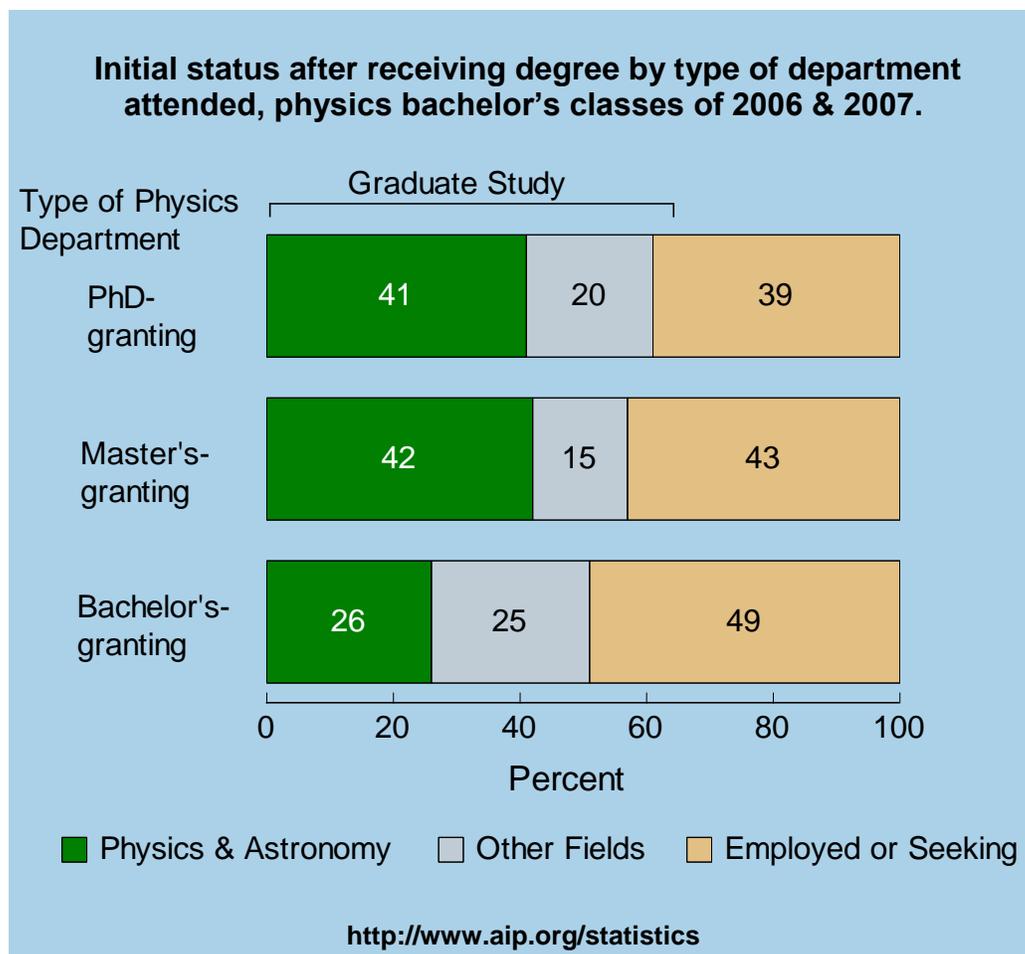
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There were 5,373 and 5,755 physics bachelor's conferred in the classes of 2006 and 2007. In the United States, the number of physics bachelor's awarded has been rising steadily for 8 consecutive years, reflecting a total increase of 58%. This surge in bachelor's degrees awarded follows steady declines during the 1990s and brings physics bachelor's degree production to its highest level in almost 40 years.

Figure 2



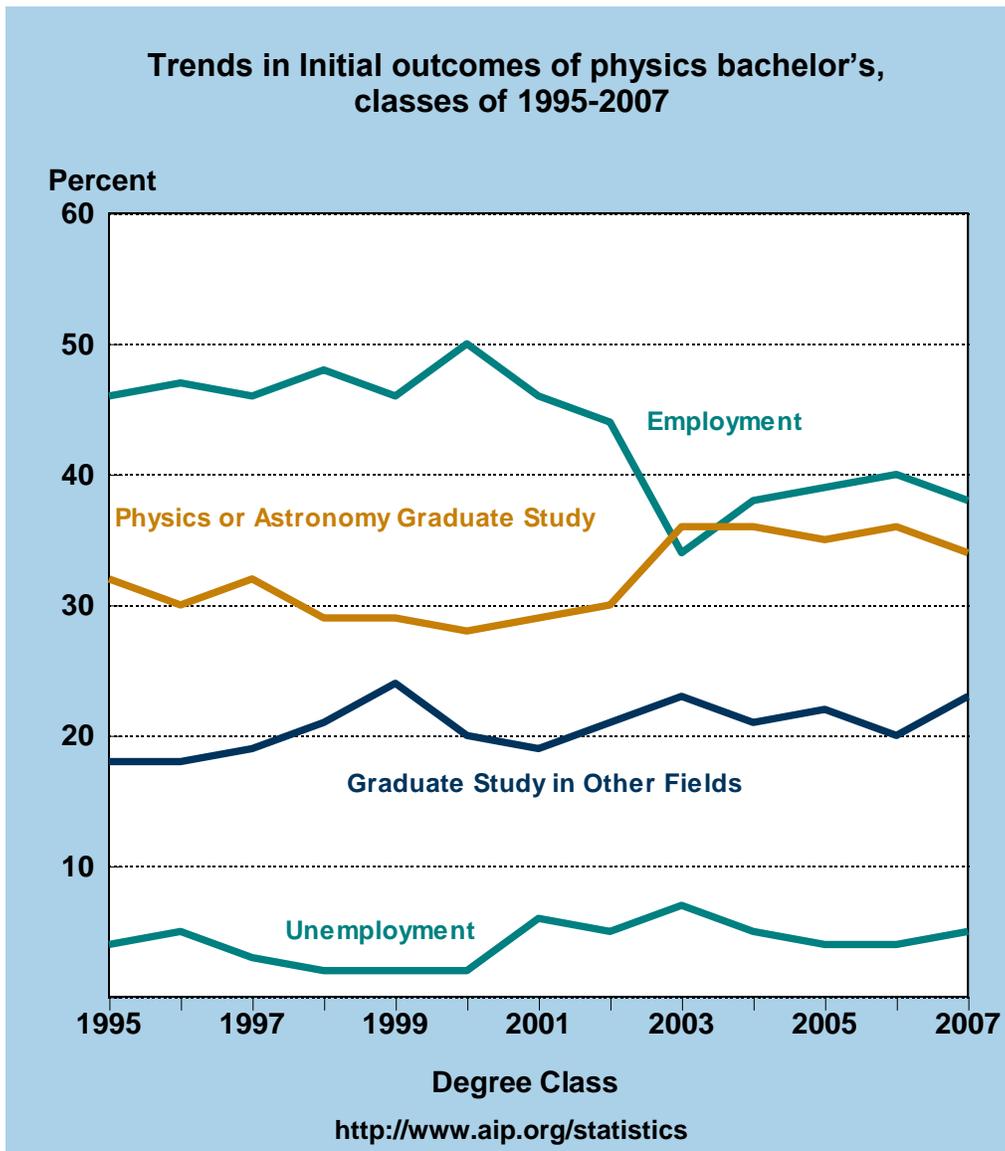
Physics bachelor's receiving their degrees from departments that grant graduate-level physics degrees are more likely to pursue graduate study in physics.

The paths that physics bachelor's pursue differ by the highest physics degree offered by the department from which they received their bachelor's. It is unclear the extent to which this difference is the result of the undergraduate experiences they had in the physics department or career goals that they had prior to starting college.

The initial status of new physics bachelor's differed little by gender, with similar proportions pursuing graduate study. Of the 43% of the new bachelor's who immediately entered the workforce, a significant number indicated they planned to enroll in a graduate program after working for a year or two.

In the late 1990s, about half of the physics bachelor's entered the workforce upon receiving their degree. In more recent years, this has dropped by 5 – 7% with a commensurate increase in the proportion going to grad school in physics and astronomy.

Figure 3



The initial outcomes of physics bachelor's have remained relatively unchanged in recent years.

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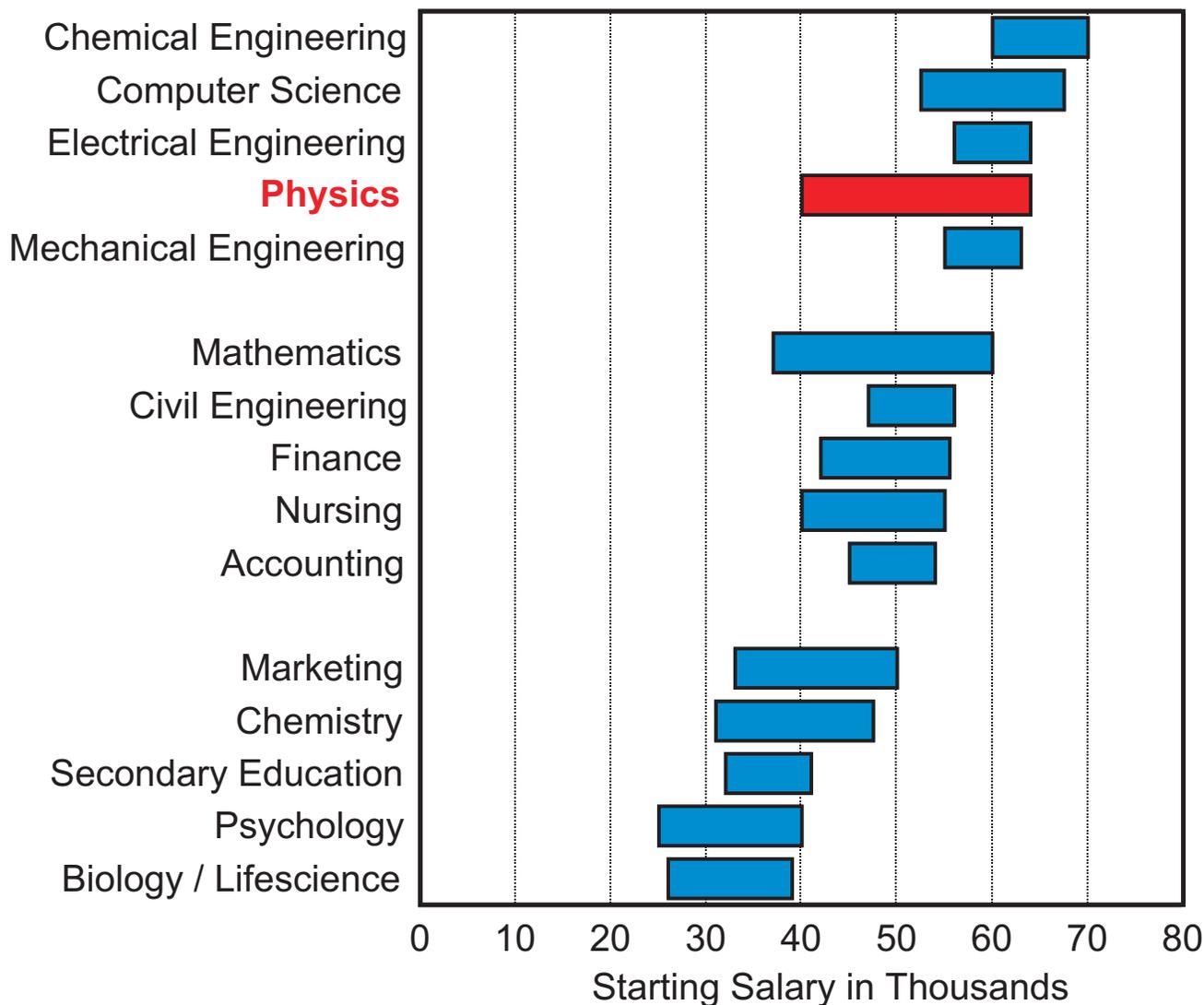
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We would like to thank the many physics and astronomy departments, degree recipients, and faculty advisors who made this publication possible.

What's a Bachelor's Degree Worth?

Typical Salary Offers by Campus Recruiters, AY 2008-09

Bachelor's Field

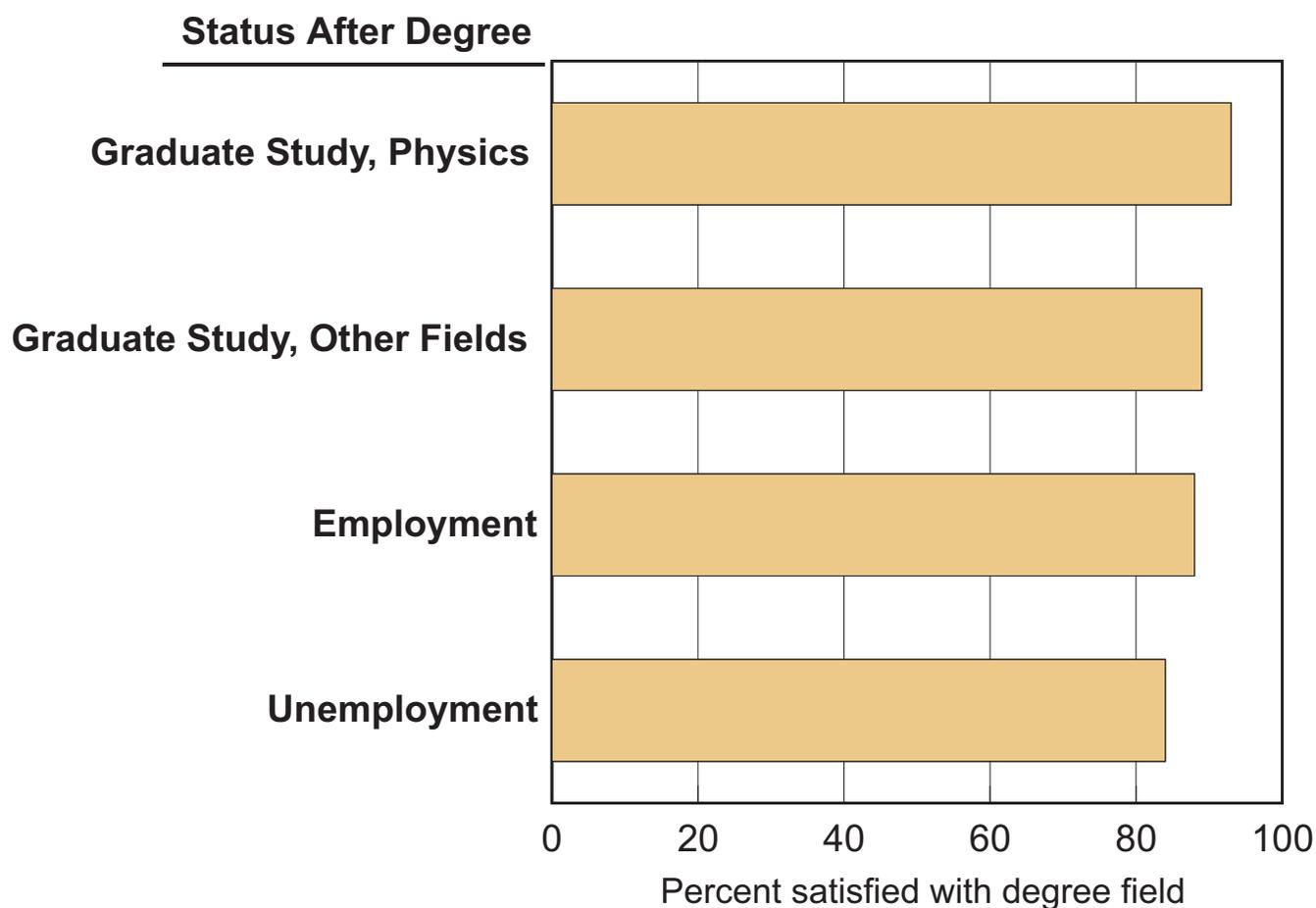


Typical salaries are the middle 50%, i.e. between the 25th and 75th percentiles.

Reprinted from the Fall 2009 Salary Survey, with permission of the National Association of Colleges and Employers, copyright holder.

If I Had to Do It Over Again, I Would Still Major in Physics.

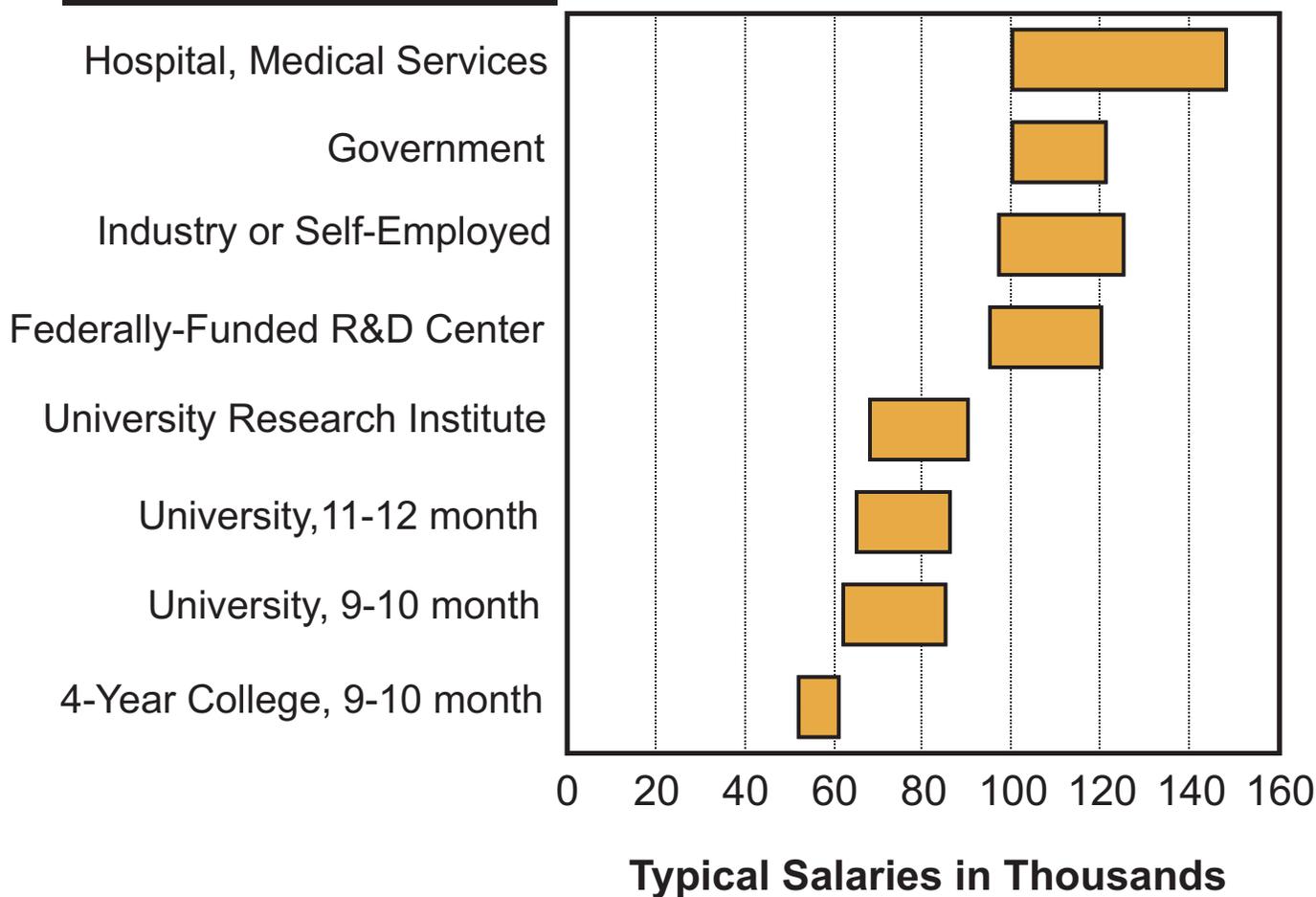
Physics Bachelor's of 2005 & 2006



Percentages represent the two positive responses on a 4-point scale from Strongly Agree to Strongly Disagree.

PhD Salaries 10 Years Later

Place of Employment

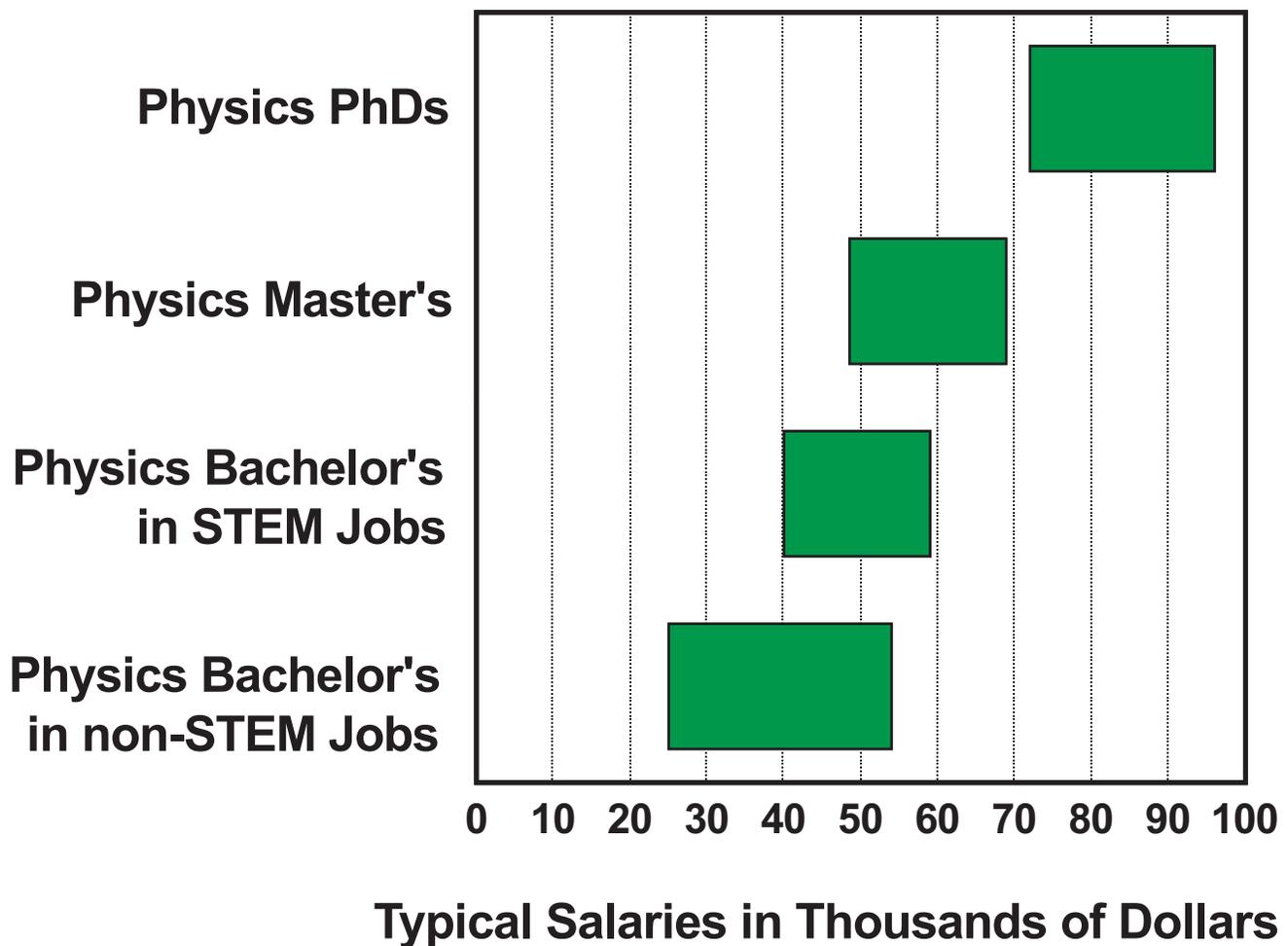


Typical salaries are the middle 50%, i.e. between the 25th and 75th percentiles, reported by US resident members of the 10 AIP Member Societies who earned their PhDs 10 to 14 years ago.

Source: AIP Statistical Research Center, 2006 Society Membership Survey

Starting Salaries in the Private Sector

Physics Degree Recipients, Classes of 2007 & 2008

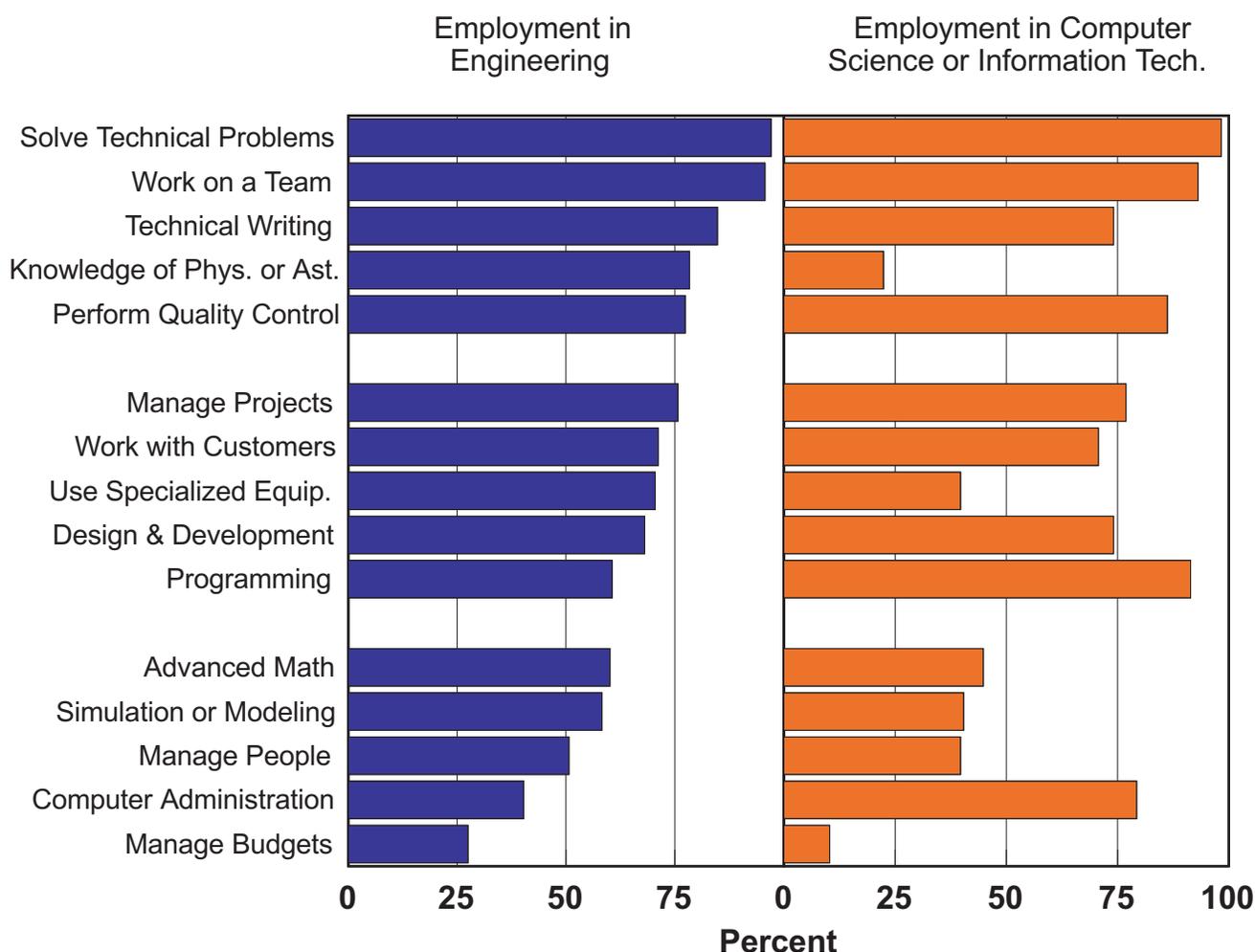


Note: Typical salaries are the middle 50%, i.e. between the 25th and 75th percentiles.
STEM refers to positions in Science, Technology, Engineering, and Math.

Source: AIP Statistical Research Center, Initial Employment Survey.

Skills Used Regularly

Physics Bachelor's in the Private Sector, Class of 2007



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

Source: AIP Statistical Research Center, Initial Employment Survey Class of 2007.

SEARCH AIP

CAREERS IN PHYSICS

Physics offers challenging, exciting, and productive careers. As a career, physics covers many specialized fields -- from acoustics, astronomy, and astrophysics to medical physics, geophysics, and vacuum sciences.

Physics offers a variety of work activities-lab supervisor, researcher, technician, teacher, manager. Physics opens doors to employment opportunities throughout the world in government, industry, schools, and private organizations.



WHERE DO I FIND ADDITIONAL INFORMATION?