

Physics Bachelors: Initial Employment

Data from the degree recipient follow-up survey for the classes of 2013 and 2014

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**REPORTS ON
PHYSICS
BACHELORS**

Physics Bachelors: One
Year After Degree
(October 2016)

**Physics Bachelors:
Initial Employment
(April 2017)**

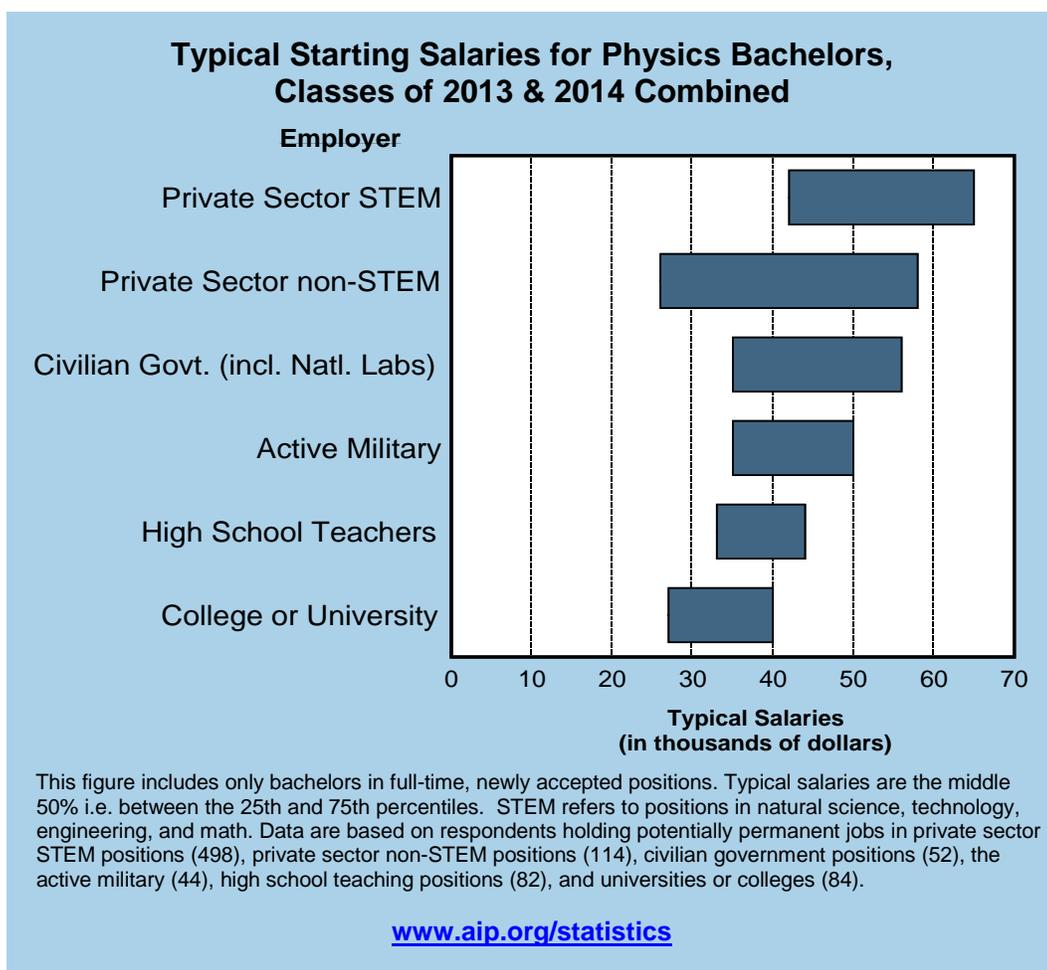
Starting salaries for physics bachelors employed in private sector non-STEM positions had the widest interquartile range. This is a reflection of the diverse types of employment that comprise this category.

**THE 2013 AND 2014
FOLLOW-UP SURVEYS OF
PHYSICS BACHELORS**

We contact physics bachelors in the winter following the academic year in which they receive their degrees. We ask them to share their employment or graduate school experiences. These reports describe our findings.

New physics bachelors entering the workforce receive some of the highest starting salaries of any undergraduate majors (see [What's a Bachelor's Degree Worth?](#)). Bachelors accepting STEM (science, technology, engineering, mathematics) positions in the private sector had a median starting salary of \$55,000.

Figure 1



Physics bachelor's degree recipients follow one of two paths after graduation. The majority (54%) of physics bachelors in the combined classes of 2013 and 2014 were enrolled in graduate school in the winter after receiving their degrees.¹ The remaining 46% either entered the workforce or were unemployed (**Figure 2**). About one sixth of the employed physics bachelors held part-time positions (less than 35 hours a week). A third of the physics bachelors employed at colleges and universities were employed in part time positions, the highest proportion of any employment sector. The majority of bachelors employed in part-time positions intend to enroll in graduate school in the future.

A small proportion (3%) of employed bachelors indicated that they were employed in internships. These positions tended to be full-time and located in STEM fields. Of all the employed bachelors, six percent were continuing employment that they held for at least a year before receiving their physics bachelor's degrees.

Figure 2

Initial Outcomes of Physics Bachelors, Classes of 2013 & 2014 Combined

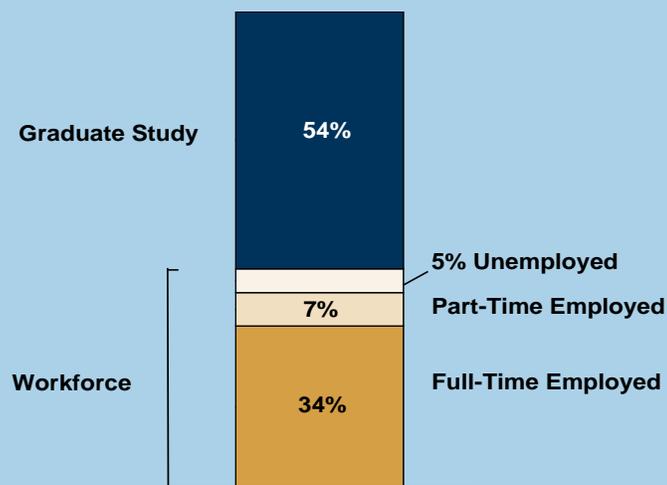


Figure based on the responses of 4,886 individuals

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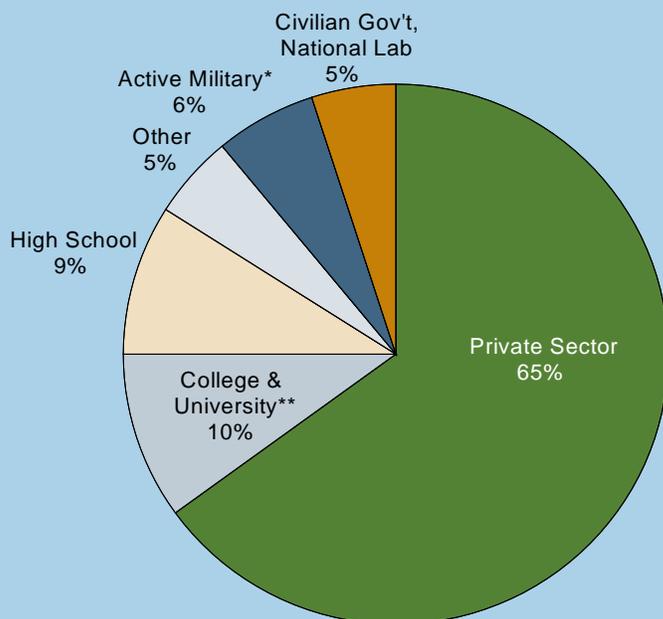
Physics bachelors in the combined classes of 2013 and 2014 enrolled in graduate school or entered the workforce in approximately equal proportions.

1) More detail concerning the graduate programs in which new graduates enrolled can be found at: [Physics Bachelors: One Year Later](#)

The private sector continues to employ the majority of physics bachelors who enter the workforce after receiving their degrees (**Figure 3**). The next two largest employment sectors were colleges and universities followed by high schools.

Figure 3

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



Although physics bachelors work in a variety of sectors of the economy, the private sector continues to employ the largest proportion of new graduates.

*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

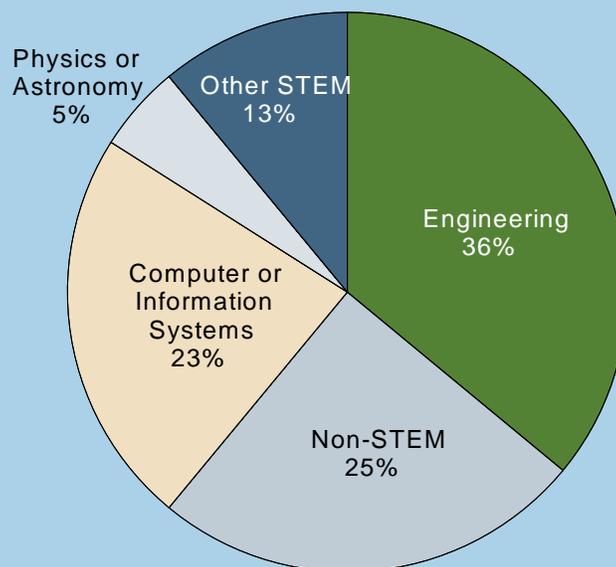
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Over one-third of the physics bachelors from the classes of 2013 and 2014 who were employed in the private sector indicated they were working in the field of engineering (**Figure 4**). The next largest STEM field was computer or information systems. As has been historically true, only a small fraction (5%) of the new physics bachelors employed in the private sector indicated they were working in the field of physics.

A quarter of the physics bachelors employed in the private sector indicated they were working in a non-STEM field. These positions covered a wide range of fields from banking and finance to management positions in the food service industry.

Figure 4

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

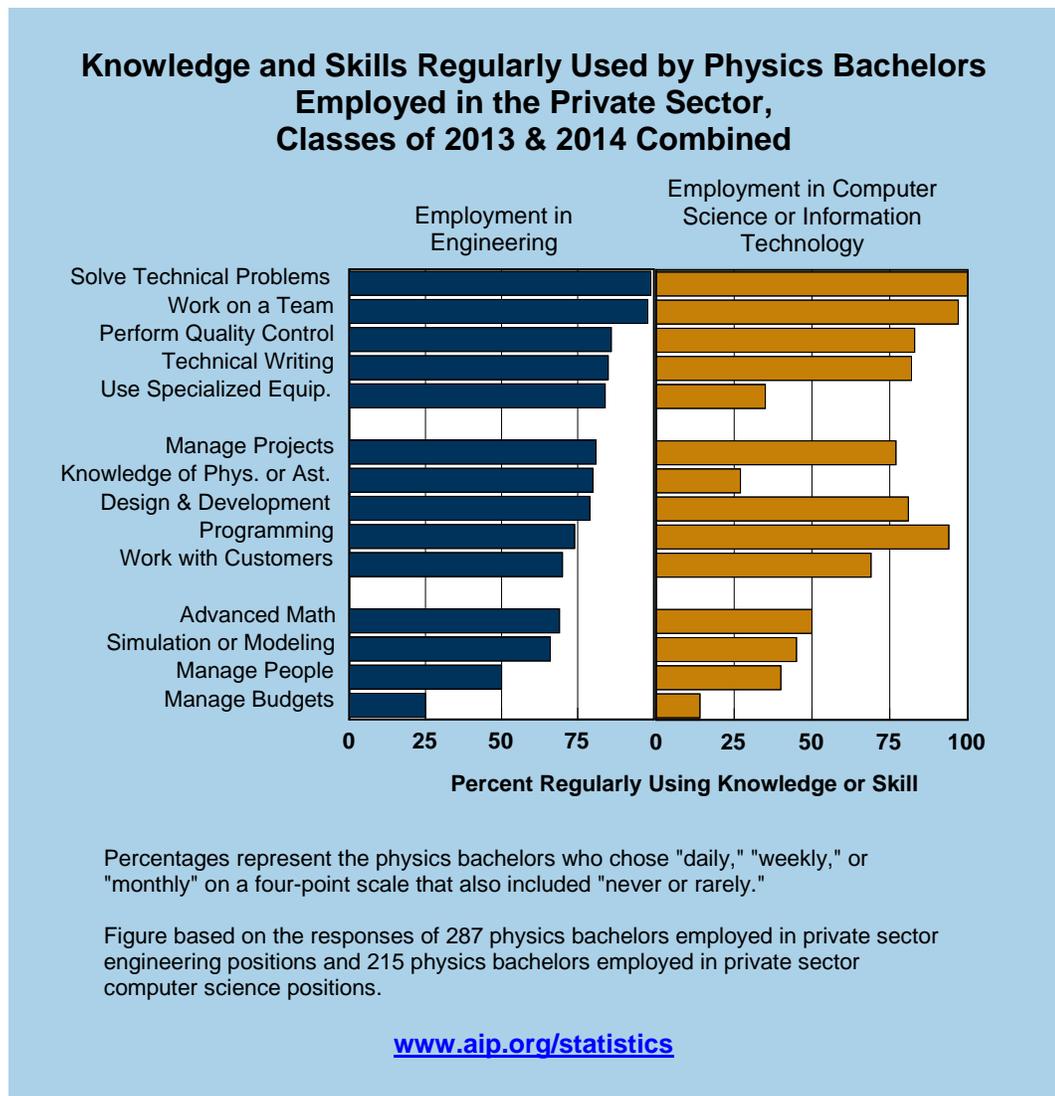
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Three-quarters of physics bachelor's degree recipients from the classes of 2013 and 2014 employed in the private sector were working in a STEM position.

When compared across their fields of employment, there are distinct similarities and differences in the knowledge and skills regularly used by physics bachelors in the private sector. The most used skills in private sector engineering and computer science positions are solving technical problems and working as part of a team (**Figure 5**).

Physics bachelors working in private sector engineering positions are more frequently called upon to use their knowledge of physics and to use specialized equipment than those working in computer science positions. Bachelors working in private sector computer science use programming and their simulation and modeling skills more regularly than those working in engineering.

Figure 5



Nearly all of the respondents employed in engineering or computer science fields regularly worked on teams and solved technical problems.

Ratings of Satisfaction

We asked physics bachelor's degree recipients to rate their satisfaction levels pertaining to different aspects of their employment. Those who indicated one of two positive choices ("very satisfied" or "somewhat satisfied") on a four point scale are included in **Figures 6** through **11**. In an open-ended question, we also gave physics bachelors an opportunity to describe the most rewarding aspects of their positions.

Private Sector STEM

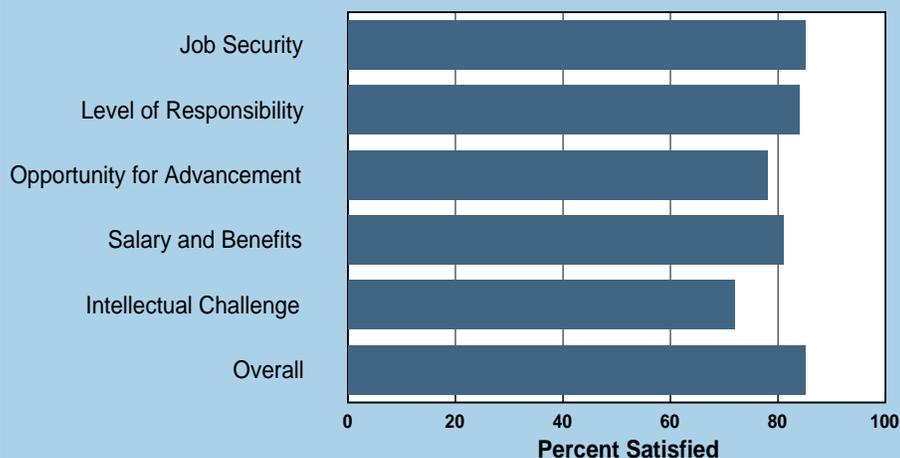
Physics bachelors cited a number of different aspects of their work that they found rewarding. Many indicated that being able to apply the knowledge they gained as undergraduates and "working to solve technical problems" were reasons that they enjoyed their work. Comments from some physics bachelors were more practical, such as how their current jobs helped them to realize that they would like to pursue graduate-level degrees.

Figure 6

Physics bachelors employed in private sector STEM positions indicated high levels of satisfaction with all aspects of their positions.

One respondent indicated that "tackling interesting and challenging analytical problems" was the most rewarding aspect of his daily work.

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



Percentages represent the physics bachelors who chose "very satisfied" or "somewhat satisfied" on a four-point scale that also included "somewhat dissatisfied" and "very dissatisfied." STEM refers to natural science, technology, engineering and math.

Figure based on the responses of 670 physics bachelors employed in private sector STEM positions.

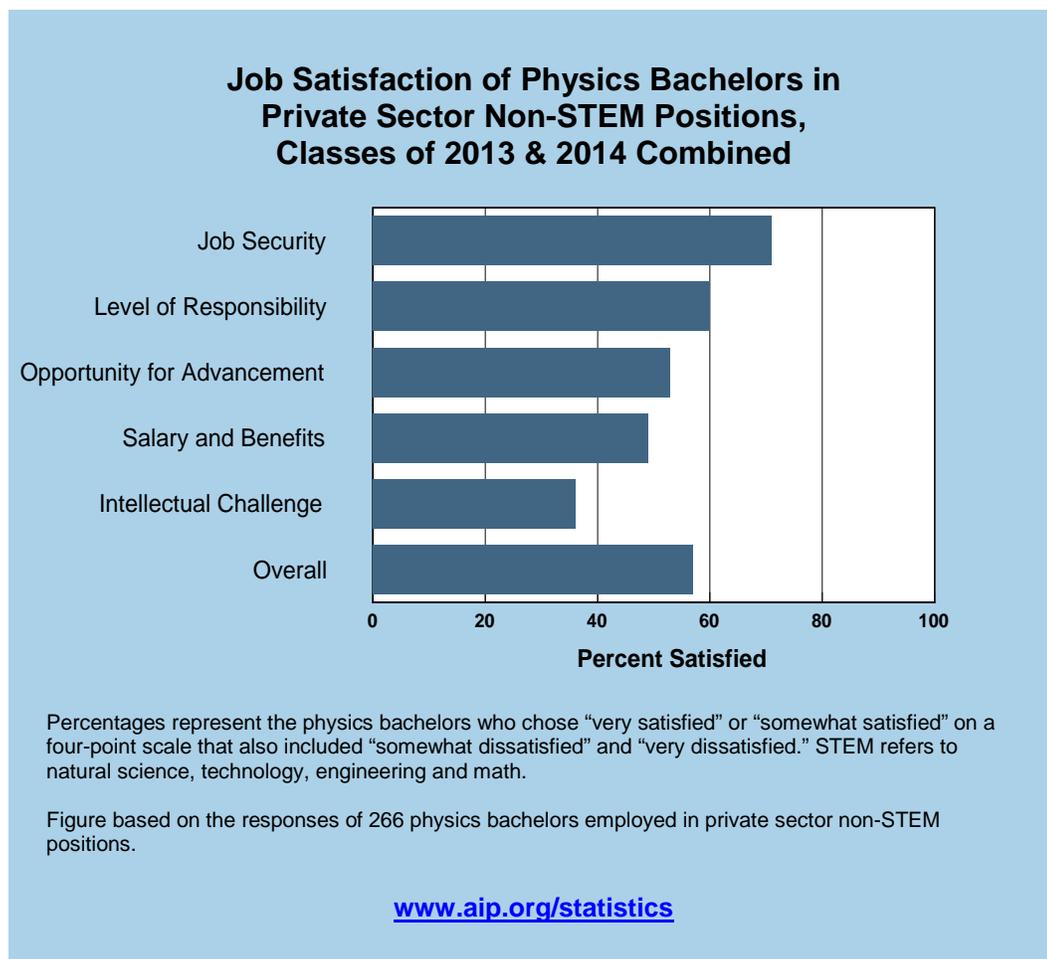
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Private Sector non-STEM

Physics bachelors in private sector non-STEM positions were generally less satisfied with their employment than bachelors working in other sectors or in private sector STEM positions (**Figure 7**). About a third reported feeling intellectually challenged by their work, the lowest of all the employment sectors.

Respondent comments generally mirrored this lower level of overall satisfaction, with many indicating that the most rewarding aspect of their work was a steady pay check. Others mentioned that their jobs were a good introduction into the professional world, and a good way to experience life outside of academia.

Figure 7



Just over half of physics bachelors employed in non-STEM positions indicated that overall they were satisfied with their position.

"The greatest part about [my position is] how different of a job it was compared to anything else I've done."

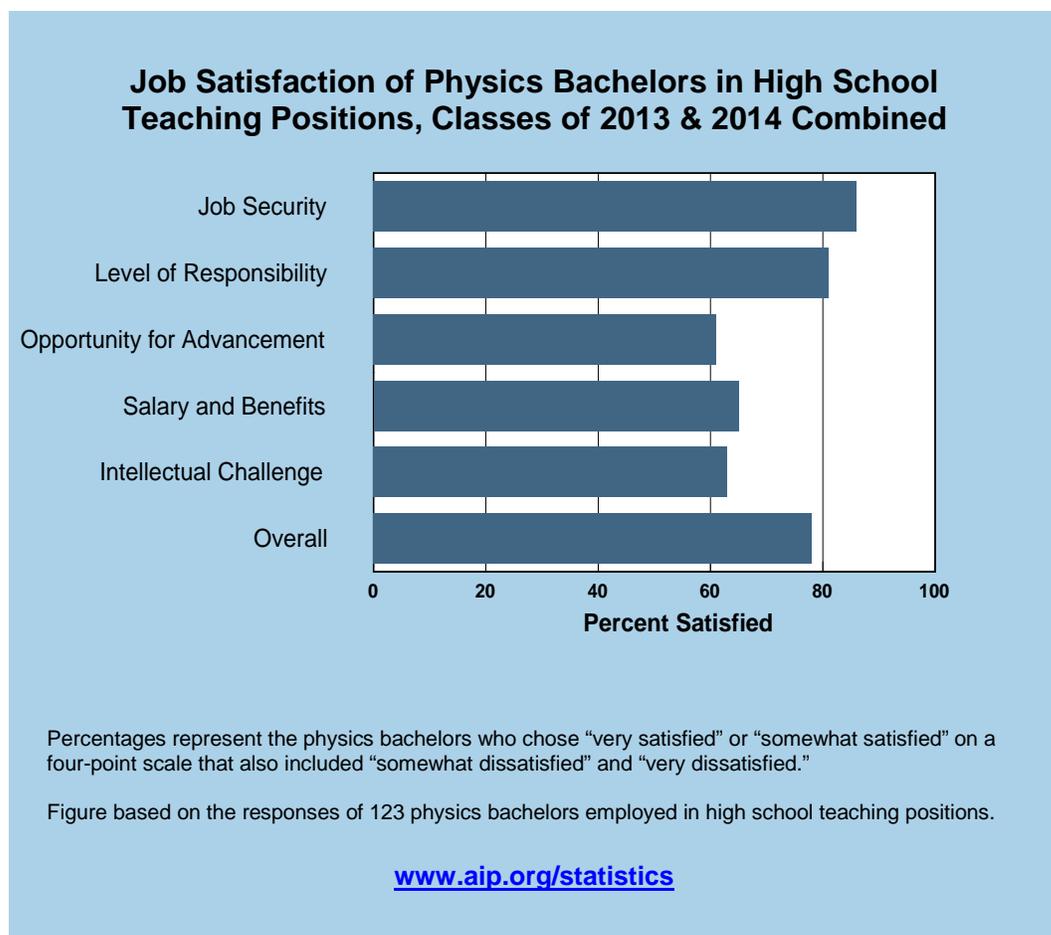
– respondent comment

High School Teachers

Almost all of the physics bachelors teaching in high schools were teaching STEM subjects, with physics being the most common. Physics bachelors holding high school teaching positions were very satisfied with their job security and level of responsibility (**Figure 8**). High school teachers often cited working with students and seeing them gain an understanding of physics as the most rewarding aspect of their jobs.

For more detailed information about high school physics teachers, please see the [AIP report series on physics in high schools](#).

Figure 8



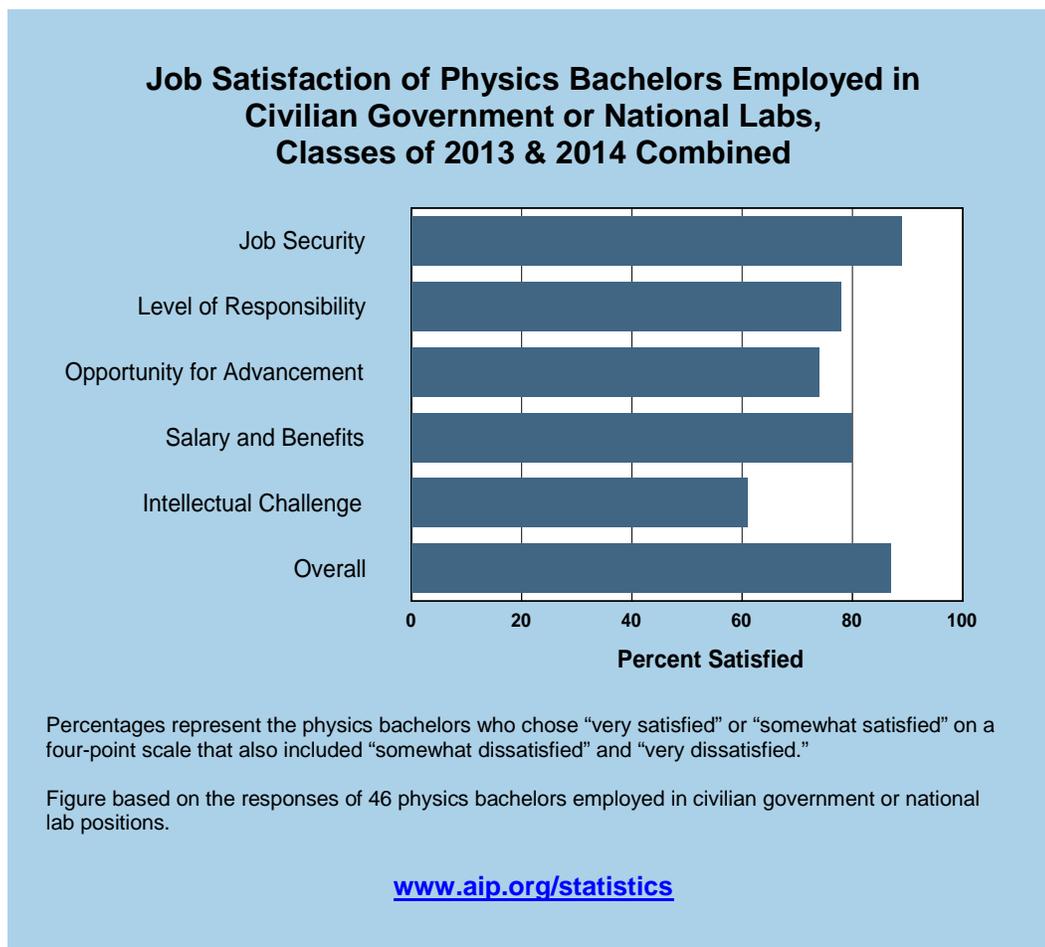
78% of high school teachers reported that they were satisfied with their positions.

A physics bachelor working as a high school teacher enjoyed “having the opportunity to get young students excited about learning physics.”

Civilian Government or National Labs

Physics bachelors who accepted a position in the civilian government or at a national lab indicated high levels of overall satisfaction (**Figure 9**). They also reported high levels of satisfaction with their job security and with the salary and benefits they were receiving. The ability to do research in interesting fields was a commonly cited positive of working in a government position.

Figure 9



Physics bachelors employed in civilian government or national lab positions indicated very high levels of overall satisfaction, especially with their job security.

“My position allows me to pursue a variety of applications and problems and also satisfies my passion for applying and learning about applied physics.”

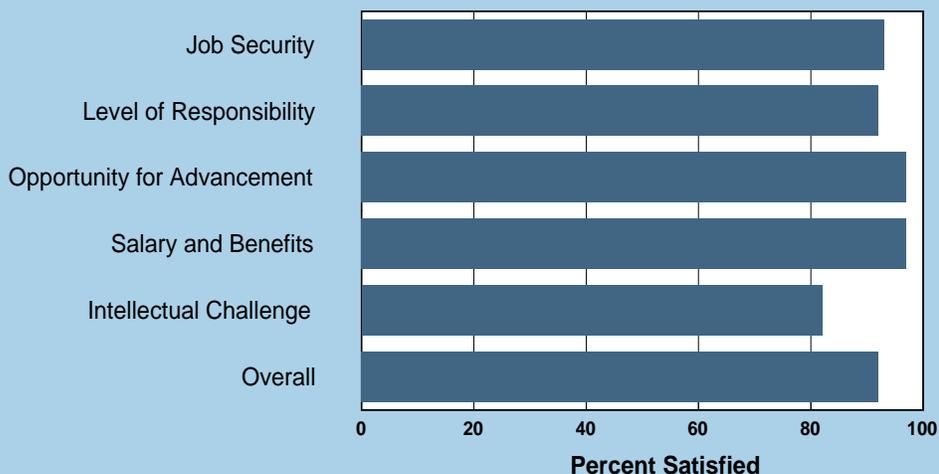
– physics bachelor employed in government/national lab

Active Military

Of all the employment sectors, physics bachelors employed as active military personnel reported the highest levels of satisfaction in all aspects of their work (**Figure 10**). Many physics bachelors employed in the military indicated that working in the military provided them with valuable leadership training and experience. This figure includes degree recipients from military institutes that are not one of the three military academies and graduates from non-military schools who enlisted after graduation.

Figure 10

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



Percentages represent the physics bachelors who chose “very satisfied” or “somewhat satisfied” on a four-point scale that also included “somewhat dissatisfied” and “very dissatisfied.”

Figure based on the responses of 60 physics bachelors in the active military.

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Almost all physics bachelors in the active military had the rank of officer.

“Being a pilot in the Navy is the best possible job to have immediately following college.”

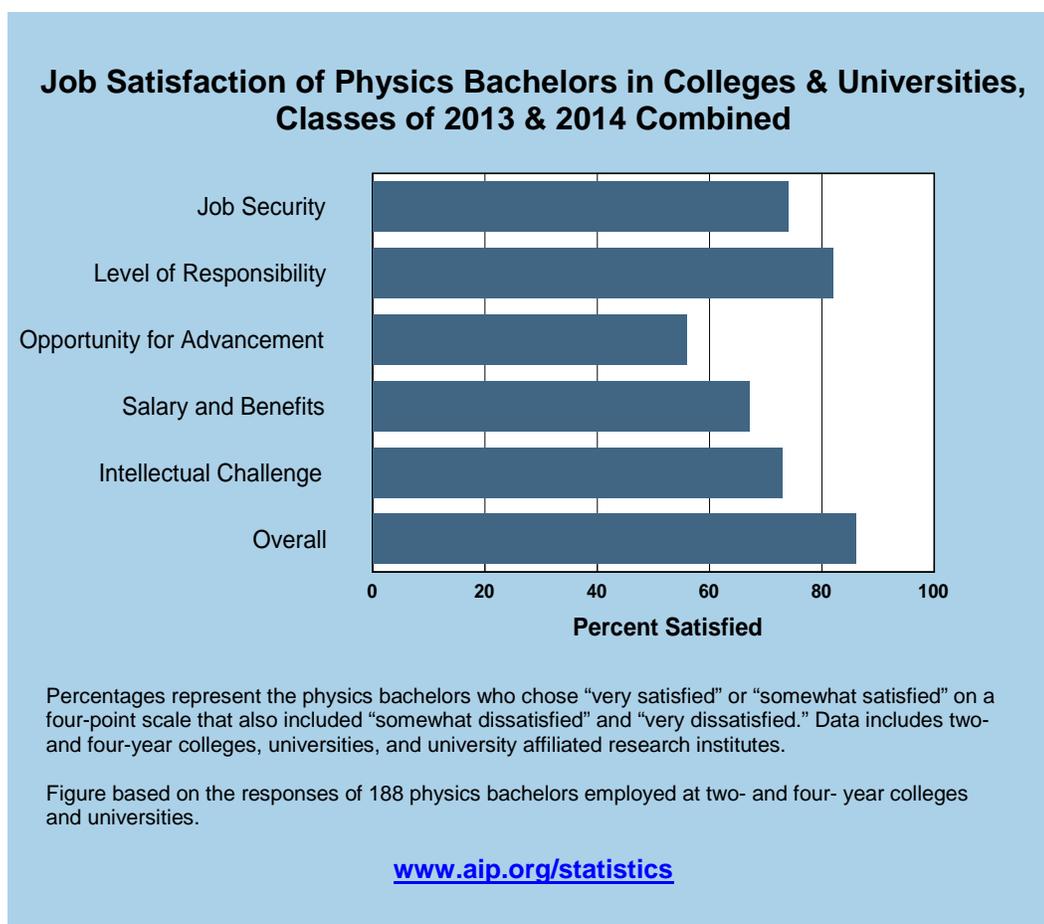
– physics bachelor in the active military

College and Universities

Physics bachelors working at colleges or universities were commonly holding positions such as research assistant or lab technician. Despite reporting high levels of overall satisfaction, physics bachelors in this sector had relatively low levels of satisfaction concerning their opportunity for advancement (**Figure 11**).

The majority of bachelors employed in this sector were planning on enrolling in a graduate program in the future, with one respondent stating that working in academia “looks good on a resume for graduate programs”.

Figure 11



Over 80% of the physics bachelors employed at colleges and universities indicated they were satisfied with the level of responsibility they had.

One reason a physics bachelor enjoyed working in academia was “the hours and the environment encouraged me to pursue more education.”

Gender Differences

Respondents who were female comprised about a fifth of the physics bachelor's degrees conferred in the classes of 2013 and 2014 combined. A similar proportion of both genders from these classes entered the workforce (43% of female respondents vs 46% of male respondents).

Table 1

Initial Employment Sectors of Physics Bachelors by Gender, Classes of 2013 & 2014

	Female %	Male %
Private Sector	54	61
Civilian Government*	5	4
High School Teacher	13	8
College or University**	15	16
Active Military	2	7
Other	11	4
Total %	100%	100%

* Includes Federally Funded Research and Development Centers and National labs.

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

Figure based on the responses of 1,657 physics bachelors

www.aip.org/statistics

Female respondents were more likely to accept positions as high school teachers than males.

Even though both genders entered the workforce at similar rates, there is a tendency for them to work in different employment sectors. As has been true in the past, male respondents were more likely to accept positions in the active military or in the private sector than female respondents. A larger proportion of females worked as high school teachers than their male counterparts (**Table 1**).

Future Graduate Studies

Not all physics bachelors from the classes of 2013 and 2014 with plans to attend graduate school enrolled immediately after receiving their bachelor's degree. Of the bachelors who entered the workforce after graduating, 17% had plans to enroll in a graduate program in the future, and two-thirds of these hoped to enroll within the next year. About half of those planning to enroll in a graduate program in the future intended to do so in physics or astronomy.

Survey Methodology

Each fall, the AIP Statistical Research Center (SRC) conducts the “Survey of Enrollments and Degrees,” which asks physics and astronomy departments to provide information concerning the number 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 information is used to conduct the follow-up survey of degree recipients in the winter following the academic year in which they received their degrees.

Recent degree recipients can be very difficult to reach because they tend to move after graduating. Often, 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 graduates.

The physics classes of 2013 and 2014 consisted of 7,329 and 7,526 bachelors respectively. We conducted the follow-up surveys for the classes of 2013 and 2014 using a web-based form and sent as many as four e-mail invitations to degree recipients. We received post-degree information for about 34% of these degree recipients, with 74% of the information coming directly from the student and 26% of the information coming from the student’s advisor. Four percent of the respondents were pursuing employment or graduate study outside the US and were not included in the analysis.

Physics bachelor’s degree recipients from military academies are unique because their school choice puts them on a clear career path. Degree recipients from these institutions are not included in the analysis.

e-Updates

You can sign up to receive an e-mail alert when the SRC posts a new report. Visit https://www.aip.org/statistics/e_updates to register and indicate your area(s) of interest. We will send you an e-Update only when we post a new report that includes data of interest to you. If you sign up for every possible notification, you should receive no more than 20 messages in a year.

Career Resources

The American Institute of Physics has a Career Resources page (<http://www.aip.org/career-resources>) that centralizes an array of career-related information for members of the physical science community. Content includes career advice, the latest science and engineering job opportunities, employment statistics, fellowship information, and science education and career path recommendations.

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