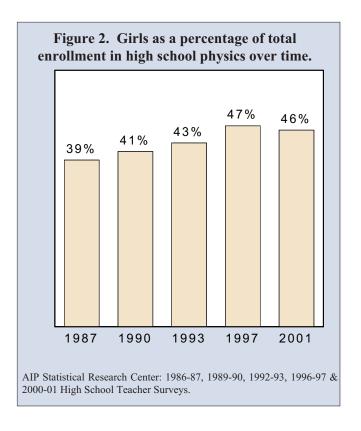
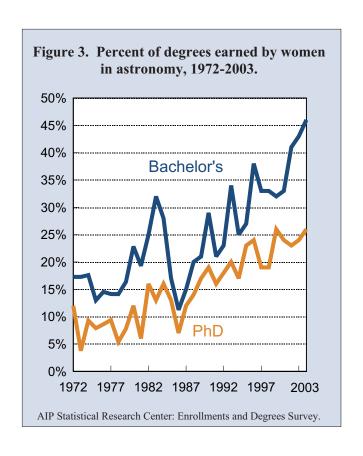
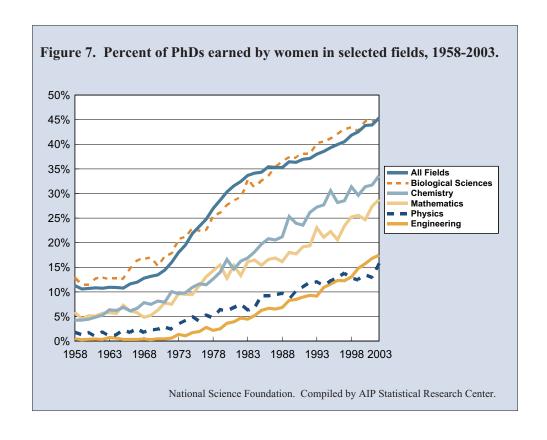
## Women in Physics and Astronomy, 2005.

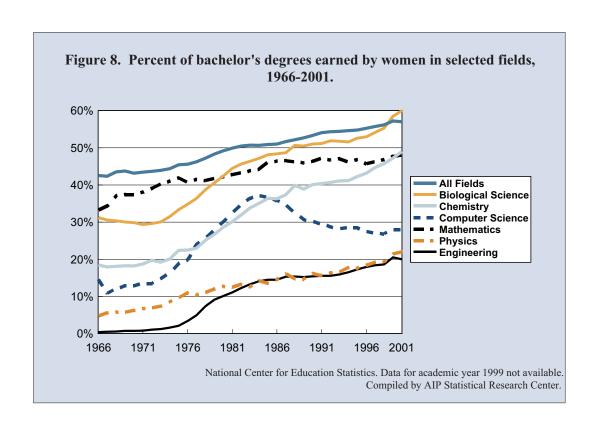
## **Highlights**

- The representation of women in physics and astronomy at all levels continues to increase. At the high school level, almost half of physics students are girls (Figure 2), although fewer girls take AP physics in high school. During 2003, women earned 22% of the bachelor's degrees in physics and 18% of the PhDs in physics—a record high (Figure 1). In astronomy in 2003, women earned 46% of bachelor's degrees and 26% of PhDs (Figure 3).
- Astronomy has a much higher representation of women than does physics. Although the percentage of degrees awarded to women in physics continues to increase, physics is not attracting women as quickly as other fields (Figures 7 and 8).
- There are 18 physics departments that award at least 40% of their bachelor's degrees to women (Table 2). There are 10 physics departments that award more than 25% of their PhDs to women (Table 4). There are also 19 women's colleges that award at least a bachelor's degree in physics, although these colleges account for only a small percentage of bachelor's degrees in physics earned by women (Table 3).
- Women are 10% of the faculty members in degree granting physics departments (Table 6). In stand-alone astronomy departments, the percentage of women faculty members is 14% (Table 5). In addition, women are better represented at departments that do not grant graduate degrees and in the lower ranks of the faculty.
- Examination of the academic "pipeline" reveals that women disproportionately leave physics between taking it in high school and earning a bachelor's degree. While almost half of high school physics students are girls, less that one-fourth of bachelor's degrees in physics are earned by women. After this initial "leak" in the pipeline, women are represented at about the levels we would expect based on degree production in the past. There appears to be no leak in the pipeline at the faculty level in either physics or astronomy (Figures 11 and 12).
- Estimates of the retention rates for physics graduate students show only small differences in the dropout rate for male and female students.
- African American and Hispanic women earn very few of the physics degrees in the US (Figures 15 and 16).
- Internationally, the representation of women in physics is also very low. Most countries award less than 25% of their first-level university physics degrees to women, and most grant less than 20% of their physics PhDs to women (Tables 11 and 12).
- Even when working in the same sector for the same number of years, women's salaries are lower than men's in physics and related fields.









| Table 2. | Physics departments awarding at least 40% |  |
|----------|---|--|
| of b     | achelor's degrees to women, 1999-2003.    |  |

Alabama A&M University

Alfred University

American University

Bard College

Dallas, University of

Denver, University of

Florida Atlantic University

Grambling State University

Hampton University

Hunter College

Jackson State University

Loyola University - New Orleans

North Carolina A&T

North Carolina Central University

Ramapo College of New Jersey

Roanoke College

San Francisco, University of

Xavier University of Louisiana

Note: To be included on this list, departments had to have at least 5 women graduates during 1999-2000, and had to consistently respond to our annual surveys.

AIP Statistical Research Center, Enrollments and Degrees Survey.

## Table 3. Women's colleges that award at least a bachelor's degree in physics, 2005.

Agnes Scott College

Barnard College

Bryn Mawr College

Chatham College

Georgian Court College

Hollins University

Mary Baldwin College

Mount Holyoke College

Notre Dame of MD, College of

Randolph-Macon Woman's College

Saint Catherine, College of

Scripps College

Simmons College

Smith College

Spelman College

Sweet Briar College

Wellesley College

Wells College

Wesleyan College

AIP Statistical Research Center, Enrollments and Degrees Survey.

Table 4. Physics departments that awarded more than 25% of PhD degrees to women, 1999-2003.

Alaska, University of

Cincinnati, University of

Dartmouth College

Georgia, University of

Hampton University

Kent State

Missouri, University of, at Columbia

Notre Dame, University of

Tulane University

Washington University

Note: To be included on this list, departments had to have at least 5 women graduates during 1999-2000, and had to consistently respond to our annual surveys.

AIP Statistical Research Center, Enrollments and Degrees Survey.

| Table 5. | Percent of faculty positions in astronomy |
|----------|---|
|          | held by women, 2003                       |

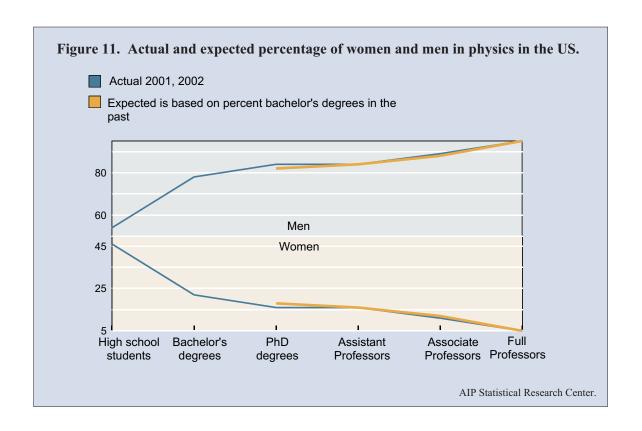
| neid by women, 2000  |         |  |
|----------------------|---------|--|
| Academic Rank        | Percent |  |
| Full professor       | 10      |  |
| Associate professor  | 23      |  |
| Assistant professor  | 23      |  |
| Instructor / Adjunct | 15      |  |
| Other ranks          | 15      |  |
|                      |         |  |
| Overall              | 14      |  |

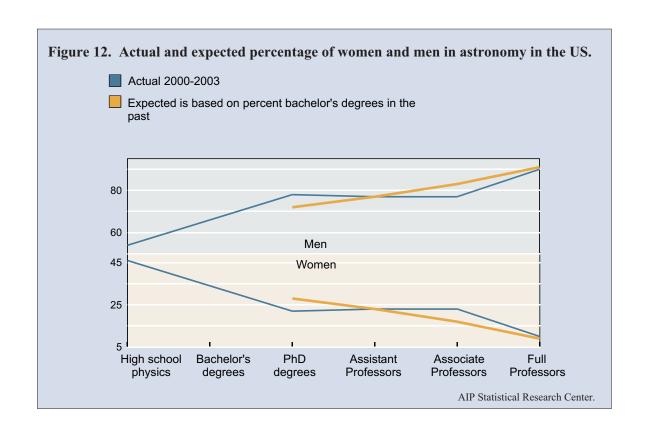
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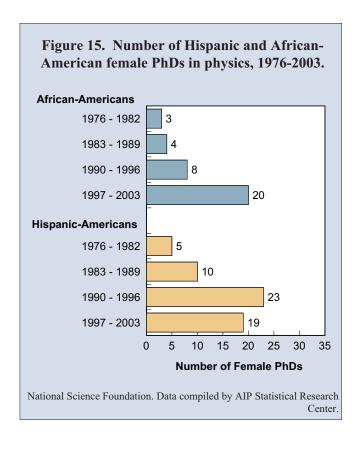
| Table 6. | Percent of faculty positions in physics held |
|----------|--|
|          | by women, 1994, 1998 and 2002.               |

|                      | 1994 | 1998 | 2002 |
|----------------------|------|------|------|
|                      | %    | %    | %    |
| Academic Rank        |      |      |      |
| Full professor       | 3    | 3    | 5    |
| Associate professor  | 8    | 10   | 11   |
| Assistant professor  | 12   | 17   | 16   |
| Instructor / Adjunct | N/A  | N/A  | 16   |
| Other ranks          | 8    | 13   | 15   |
| Type of Department   |      |      |      |
| PhD                  | 5    | 6    | 7    |
| Master's             | 7    | 9    | 13   |
| Bachelor's           | 7    | 11   | 14   |
|                      |      |      |      |
| Overall              | 6    | 8    | 10   |

AIP Statistical Research Center: 2002 Academic Workforce Survey.







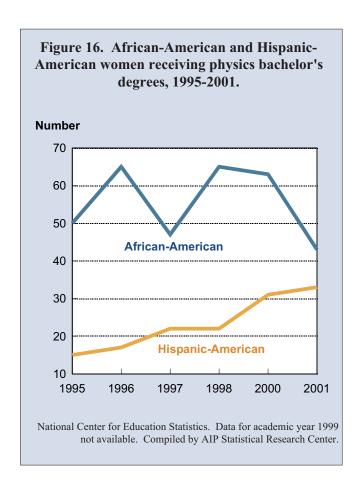


Table 11. Percent of physics bachelor's degrees awarded to women in selected countries: 2-year averages.

|                 | % Bachelor's to women | Avg # of Bachelor's per year, both sexes |
|-----------------|-----------------------|--|
| Turkey          | 39                    | 2,219                                    |
| Greece          | 34                    | 588                                      |
| France          | 33                    | 3,256                                    |
| South Korea     | 30                    | 2,189                                    |
| Sweden          | 29                    | 55                                       |
| Latvia          | 26                    | 12                                       |
| Australia       | 21                    | 182                                      |
| United Kingdom  | 21                    | 1,755                                    |
| Norway          | 21                    | 72                                       |
| USA             | 21                    | 3,770                                    |
| Taiwan          | 20                    | 825                                      |
| Slovenia        | 19                    | 26                                       |
| Estonia         | 18                    | 20                                       |
| Mexico          | 18                    | 162                                      |
| Denmark         | 17                    | 95                                       |
| Japan           | 13                    | 3.314                                    |
| The Netherlands | 12                    | 206                                      |
| Germany         | 9                     | 2,173                                    |
| Switzerland     | 9                     | 206                                      |
| 19 Countries    | 24                    | 21,125                                   |

1998-99 data are presented for countires in blue. For all other countries, 1999-2000 data represented. To be included, countries had to provide approriate data from reliable statistical agencies.

Compiled by AIP Statistical Research Center.

Table 12. Percent of physics PhDs awarded to women in selected countries: 2-year averages.

|                 | % PhDs to women | Avg # of PhDs per<br>year, both sexes |
|-----------------|-----------------|---------------------------------------|
| Turkey          | 28              | 50                                    |
| France          | 26              | 898                                   |
| Greece          | 25              | 39                                    |
| Australia*      | 20              | 100                                   |
| Latvia          | 20              | 3                                     |
| Denmark         | 20              | 51                                    |
| Norway          | 20              | 28                                    |
| United Kingdom  | 18              | 415                                   |
| Sweden          | 17              | 60                                    |
| Slovenia        | 15              | 17                                    |
| Poland          | 13              | 182                                   |
| USA             | 13              | 1,237                                 |
| The Netherlands | 12              | 68                                    |
| South Korea     | 10              | 125                                   |
| Taiwan          | 10              | 24                                    |
| Japan           | 10              | 374                                   |
| Estonia         | 10              | 5                                     |
| Germany         | 10              | 1,570                                 |
| Switzerland     | 9               | 109                                   |
| 19 Countries    | 15              | 5,355                                 |

<sup>\*</sup> Includes Master's degrees.

1998-99 data are presented for countires in blue. For all other countries, 1999-2000 data represented. To be included, countries had to provide approriate data from reliable statistical agencies.

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