

2004 Physics & Astronomy Academic Workforce

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Highlights

- Over the last ten years, the number of full-time equivalent (FTE) positions in physics has increased by approximately 1% per year, reaching 9000 in 2004 (Table 1). However, the percentage of FTE positions filled with temporary and non-tenure-track faculty has increased dramatically since 1998 and is now one in five positions (Table 2).
- The number of African American faculty members has increased by more than 20% since 2000, and the number of Hispanic faculty members has increased by more than 40% (Table 7). However, the percentages of African Americans and Hispanics on physics faculties are still very low (Table 6).
- The number of faculty who left positions at graduate physics departments remained steady since 2002, but the number of vacancies decreased significantly at bachelor's departments (Table 8). The retirement rate also dropped overall to 2.6%, but bachelor's departments had the largest decreases in retirements (Table 9).
- Graduate departments recruited for more tenured and tenure-track faculty than they had in 2003. However, bachelor's departments recruited for 30% fewer tenured and tenure-track faculty members. Instead, they recruited for more temporary and non-tenure-track faculty (Table 10).
- The stand-alone astronomy departments had about 590 FTE positions in 2004. The PhD astronomy departments were recruiting for 22 tenured or tenure-track faculty members for 2004-05 (Table 11).
- Bachelor's physics departments, like PhD physics departments, are hiring faculty members with experience—particularly those who have previously worked as postdocs, tenured or tenure-track faculty members, or research scientists (Table 14).
- Women are hired into ranked faculty positions at rates consistent with or better than degree production in the past. However, the percentage of female new hires among instructors and adjuncts is higher than among ranked faculty (Figure 2).

Table 1. Estimated Number of Full-Time Equivalent Physics Faculty and Average Number of Faculty, 1994 and 2004			
Type of Department		1994	2004
PhD	FTE	4900	5400
	Average	27	29
Master's	FTE	800	900
	Average	10	12
Bachelor's	FTE	2500	2700
	Average	5	5.4
Overall	FTE	8200	9000
	Average	11	12

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Table 2. Percent of Full-Time Equivalent Physics Faculty Who Were Temporary or Non-Tenure-Track, 1998, 2000, 2002, 2004				
Type of Department	1998 (%)	2000 (%)	2002 (%)	2004 (%)
PhD	12	11	14	18
Master's	12	16	19	19
Bachelor's	15	19	22	21
Overall	13	14	17	19

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Table 7. Number of African-American and Hispanic Physics Faculty by Department Type, 2000 and 2004

	Type of Department		
	PhD	Master's	Bachelor's
2004			
African-American	64	29	78
Hispanic	107	56	60
2000			
African-American	38	41	62
Hispanic	81	32	42

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Table 6. Race and Ethnicity of Physics Faculty, 2000 and 2004

	Physics		All Disciplines*
	2000	2004	2001
African-American	1.8	2.0	5.3
Asian	9.9	10.6	6.4
Hispanic	2.0	2.7	3.1
White	84.2	82.2	83.6
Other	2.0	2.2	1.6

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*Source: National Center for Education Statistics

Table 8. Estimated Tenured and Tenure-Track Physics Faculty Turnover, 2001 and 2003

	Type of Department			
	PhD	Master's	Bachelor's	Overall
Estimated Vacant Positions, 2003	186	48	106	340
Percent of Departments with Vacancies, 2003	57%	41%	19%	31%
Estimated Turnover, 2003	4.2%	6.8%	4.8%	4.6%
Estimated Turnover, 2001	4.3%	6.8%	7.2%	5.4%

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Table 9. Estimated Annual Retirement Rates for Physics Faculty

	Type of Department			
	PhD	Master's	Bachelor's	Overall
Est. Number of Retirements, 2003 & 2004	220	44	122	386
Est. Percent of Departments with Retirements per Year, 2003 & 2004	42%	23%	11%	20%
Est. Annual Retirement Rate, 2003 & 2004	2.5%	3.1%	2.8%	2.6%
Est. Annual Retirement Rate, 2001 & 2002	2.6%	4.0%	3.9%	3.1%

AIP Statistical Research Center: 2004 AWF Survey

Table 10. Physics Departments Recruiting New Faculty Members for 2003 and 2005

	Type of Department			Overall
	PhD	Master's	Bachelor's	
2005				
Number of Tenured & Tenure-Track Recruitments	284	58	127	469
Number of Temporary & Non-Tenure-Track Recruitments	32	15	106	153
2003				
Number of Tenured & Tenure-Track Recruitments	277	54	181	512
Number of Temporary & Non-Tenure-Track Recruitments	61	20	86	167

AIP Statistical Research Center: 2002, 2004 AWF Survey

Table 11. Tenured and Tenure-Track Turnover, Retirement, Recruitment, and New Hires at Astronomy Departments

Vacant Positions, 2003	21
Retirements, 2002 & 2003	15
New Hires, 2004	20
Recruitments, 2005	22

AIP Statistical Research Center: 2004 AWF Survey

Table 14. Previous Positions of New Physics Faculty, 2004*

Type of Department		Type of Department	
PhD(%)		Bachelor's(%)	
Postdoc	40	Postdoc	34
Research Scientist	32	Tenured or Tenure-Track Professor	17
Tenured or Tenure-Track Professor	22	Research Scientist	13

AIP Statistical Research Center: 2004 AWF Survey

*Includes permanent non-tenured faculty at schools without tenure, and tenured and tenure-track faculty at other schools.

Figure 2. Current Positions of New Physics Faculty by Gender, 2004

