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ABSTRACT

The total graduate physics enrollment was 10,410 at the beginning of the 1974-75 academic year; this represents an eight-year decline from a peak of 15,500 graduate students. About 90% of these students are currently enrolled at Ph.D. granting institutions. The data presented in this report come from a survey of individual graduate students whose names were supplied by department chairmen; the total number of respondents was 6,164 or 77% of the 8000 names received. The tables and diagrams included in this report present data concerning employment offers for degree recipients; characteristics of the graduate student population and minority-group graduate students; graduate students enrolled by subfield and years of graduate study completed; sources of support for graduate students by sex and degree status; background characteristics of doctorate recipients; work activities and physics subfield for new doctorate recipients; and post-degree employment of degree recipients. (MH)

AIP report

MANPOWER STATISTICS DIVISION

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1974-75 GRADUATE STUDENT SURVEY

by Susanne D. Ellis

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Fig. I. Employment offers for new doctoral degree recipients, 1969-75

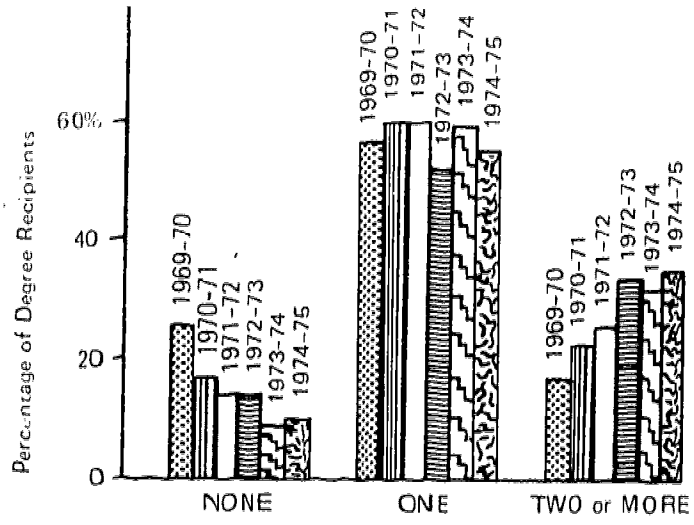
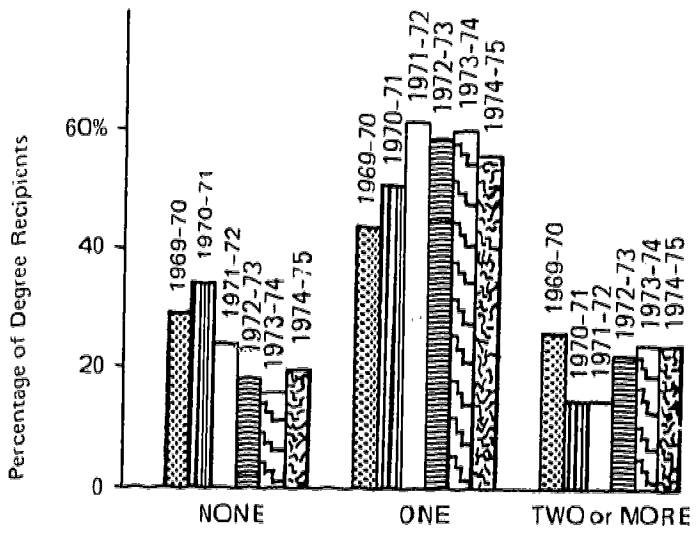


Fig. II. Employment offers for new masters, 1969-75



The survey of graduate physics students has been conducted annually since the early 1960's; this year graduate astronomy students were included for the first time. Highlights of this report are:

- a continuing decrease in the number of graduate physics students and degree recipients
- a slight decline in the employment offers to physics graduates at the master's as well as the doctorate level
- a discussion of the changes in the characteristics of the graduate student population which include background, sources of support, and subfields
- a description of the minority groups among the physics students

The total graduate physics enrollment was 10410 at the beginning of the academic year 1974-75; this total represents an eight-year decline from a peak of 15 500 graduate students. About ninety percent of these physics students are currently enrolled at PhD-granting institutions. The data presented in this report come from a survey of individual graduate students whose names were supplied by department chairmen. The total number of respondents to this survey is 6 164 or 77% of the 8000 names received. The tables and diagrams included in this report represent those data in which the physics community has shown the greatest interest. Additional analyses can be prepared upon request.

Both Figures I and II show a six-year trend in the employment market for graduate physics degree recipients, and indicate an overall decline in employment opportunities. When compared with the 1974 graduates the 1975 graduates had a higher percentage of both master's and doctorate level physicists without job offers immediately following graduation; also a smaller percentage received one job offer. On the other hand more PhD recipients had multiple offers to choose from than in the previous year. Multiple offers for new masters just leveled off.

Table I. Characteristics of the graduate student population, 1974–75

		All graduate students	First-year graduate students	Degrees granted: terminal master's	Degrees granted: doctorate
Total Population*		10410	2668	849	1167
Number of respondents		6164	1264	325	728
Sex	Female	8%	10%	10%	5%
	Male	92	90	90	95
Citizenship	US	79%	85%	88%	77%
	Foreign	21	15	12	23
Type of high school physics	PSSC**	32%	33%	34%	24%
	Project physics	3	3	3	6
	Other	59	56	54	65
	None	6	8	9	5
Type of bachelor's institution	PhD-granting	53%	53%	43%	56%
	MS-granting	11	16	25	6
	BS-granting	18	20	22	15
	Foreign	18	11	10	23
Type of graduate institution	PhD-granting	93%	83%	67%	100%
	MS-granting	7	17	33	--
Student status	Full-time	90%	86%	83%	89%
	Part-time	10	14	17	11
Source of support	Teaching ass't'ship	35%	49%	44%	14%
	Research ass't'ship	35	11	11	37
	Fellowship	10	11	6	10
	Employment	11	15	23	15
	Family, savings, loan	3	6	7	3
	Other	6	8	9	21

* *These totals were reported by physics department chairmen as part of the Survey of Enrollments and Degrees.*

** *The Physical Science Study Committee (PSSC) course material became available for general use in 1960. Since the late 1960's the percentage of graduate physics students who took PSSC in high school has increased steadily.*

Table II. Characteristics of minority-group graduate students, 1974–75

		Black	Puerto Rican	Mexican American	American Indian	Asian Indian	Oriental	Other
Total number		122	15	15	14	239	581	316
Sex	Female	14	--	1	1	29	76	19
	Male	108	15	14	13	210	505	297
Citizenship	U.S.	69	15	15	14	1	81	235
	Foreign	53	--	--	--	238	500	81
Full-time equivalent yrs of graduate study	1	26	2	3	5	27	82	72
	2	35	4	4	2	53	136	70
	3	24	3	5	3	36	86	29
	4	18	3	--	1	37	104	50
	5	10	1	--	2	45	91	34
	6	3	2	1	1	20	48	32
	⩾ 7	6	--	2	--	21	34	29
Student status	Full-time	107	13	12	13	235	555	277
	Part-time	15	2	3	1	3	25	37
	No response	--	--	--	--	1	1	2
Specialties	Astrophysics	5	1	1	1	7	21	19
	Atomic & molec.	9	1	1	1	20	40	31
	Elem. particles	23	2	1	--	30	56	31
	Nuclear	14	4	1	3	27	74	30
	Physics educ.	2	--	--	--	--	3	7
	Solid state	27	4	--	3	100	201	78
	Other subfields	42	3	11	6	55	186	120
Graduate degree recipients	Terminal master's	10	0	3	1	5	22	11
	Doctorate	6	0	2	2	37	83	32

Table I compares seven characteristics of the total graduate student population with those of three subgroups: the first-year graduate students and two groups of graduate degree recipients. With very few exceptions the general characteristics presented in this table show little change from those of the year before. The exceptions apply to the first year students. They include a higher percentage of women in 1974-75, 10% compared with 8% in the previous year. Even more noteworthy is the lower percentage of foreign students among them. In 1973-74 the first-year graduate students included 23% foreign students while 1974-75 shows a decline to 15%. At the same time it should be emphasized that the number of first-year students hardly declined, 2680 to 2668.

The distribution of minorities among physicists continues to be a topic of considerable interest. The questionnaire for this survey lists six minority groups and the graduate students are asked to identify themselves in case they are members of any of them. The group labeled "other" is intended to describe other minorities among U.S. physicists. Only one third of the minorities presented in **Table II** are U.S. citizens because the two groups of Asian students comprise 63% of the minority respondents and include a very high proportion of non-U.S. citizens.

A comparison of the minority groups' characteristics with those presented in **Table I** indicates a higher percentage of women among black, Asian Indian and Oriental graduate physics students.

The response from minority-group terminal master's degree recipients appears to be higher than that of all masters. Such a comparison of responses is possible because physics department chairmen report the number of blacks and other minorities among the degree candidates as part of the information they contribute to the annual Survey of Enrollments and Degrees. The numbers of terminal master's degrees conferred on blacks and other minorities in 1974-75 were 14 and 57 respectively; this Graduate Student Survey includes 10 and 42 terminal masters among the individual black and other minority respondents.

Table III estimates the total number of graduate students in eleven major subfields and shows the distribution of students within each subfield for each level of graduate study in 1974-75. This table is frequently used to answer questions such as: How many doctoral-level nuclear physicists are likely to enter the employment market in the next two years? Knowing that the median number of years spent to attain a PhD is six, this table will provide an approximate number of degree recipients for a given subfield. The vertical percentages inside **Table III** are intended to give the distribution of student by subfield at each level of graduate study.

In comparison with the previous year the data in **Table III** show a greater proportion of biophysics and solid state physicists among the entering graduate students.

Students interested in teaching physics as well as those who enroll in a general physics program are more likely to have the terminal master's degree as their objective.

Table III. Graduate students enrolled in 1974-75 by subfield and years of graduate study completed

	Full-time equivalent years of graduate study									Total graduate students	
	1 yr.	2 yrs.	3 yrs.	4 yrs.	5 yrs.	6 yrs.	7 yrs.	8 yrs.	≥ 9 yrs.		
Distr. of students:	25.7%	20.7%	14.3%	13.1%	12.8%	7.3%	3.2%	1.7%	1.2%	N	%
Physics subfields											
Astrophysics	5.9%	6.1%	5.9%	7.1%	6.9%	7.5%	3.9%	4.6%	5.4%	655	6.3
Atomic & molecular	4.4	5.9	9.3	9.4	10.5	10.7	8.2	11.9	21.6	820	7.9
Biophysics	4.2	3.7	4.2	4.2	3.6	3.0	3.4	2.8	4.1	405	3.9
Elem. particles	8.5	11.9	14.4	11.5	13.5	16.0	12.6	10.1	10.8	1 250	12.0
Fusion, plasmas	4.0	5.2	5.5	5.1	5.5	4.1	5.3	1.8	---	500	4.8
Nuclear physics	9.4	11.7	10.2	10.9	11.5	10.3	11.6	10.1	8.1	1 115	10.7
Optics	3.4	4.2	2.9	3.0	2.4	2.4	2.9	4.6	---	335	3.2
Relativity	3.8	2.3	2.7	4.0	2.7	1.9	1.5	0.9	2.7	300	2.9
Solid state	20.1	22.2	27.1	25.9	29.8	30.0	32.8	37.6	36.5	2 650	25.4
Thermal	1.0	1.9	2.2	1.9	1.7	1.7	1.9	3.7	2.7	185	1.8
Physics education	4.2	2.8	1.0	---	---	---	---	---	---	165	1.6
Physics general	17.9	10.7	5.1	2.0	---	---	---	---	---	770	7.4
Other subfields	13.2	11.4	9.5	15.0	11.9	12.4	15.9	11.9	8.1	1 260	12.1
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	10 410*	100.0

**The distribution of students in each subfield is based on the 6 072 respondents to this question.*

Table IV. Sources of support for graduate students by sex and degree status

Source of support	Sex				Candidates for								Total	
	Female		Male		Terminal master's		MS enroute to PhD		PhD after MS		PhD only		N	%
	N	%	N	%	N	%	N	%	N	%	N	%		
Teaching assistantship	225	46	1870	34	307	41	590	51	575	25	623	34	2095	34.7
Research assistantship	123	25	2014	36	67	9	199	17	1104	48	767	42	2137	35.3
Fellowship	42	9	564	10	34	4	107	9	208	9	257	14	606	10.0
Employment	47	10	625	11	223	30	125	11	263	11	61	3	672	11.1
Traineeship	3	1	19	2	3	--	1	--	10	1	8	1	22	0.4
G.I. Bill	1		81		27	4	29	3	14		12		82	1.4
Family, savings, loan	30	6	183	3	47	6	56	5	59	3	51	3	213	3.5
Other	7	1	67	1	24	3	11	1	21	1	18	1	74	1.2
Multiple sources of support, primarily with teaching assistantship	11	2	136	3	21	3	35	3	54	2	37	2	147	2.4
Total N	489		5559		753		1153		2308		1834		6048	
respondents %	8.1		91.9		12.4		19.1		38.2		30.3			100.0%

In presenting the different sources of support **Table IV** shows that research assistantships are primarily offered to the advanced graduate students, consequently fewer than 10% of those enrolled for a terminal master's degree, hold research assistantships. This table also shows that a somewhat larger fraction of women students finance their graduate physics education by means of savings, loans or family support. What this table does not show directly is the sex difference related to the type of degree. Sixteen percent of the women graduate students but only eleven percent of men graduate students are among the candidates for the terminal master's degree.

Employment as a source of support is most prevalent among all candidates who work on terminal master's degrees.

Fig. III. Background characteristics of 1974-75 doctorate recipients

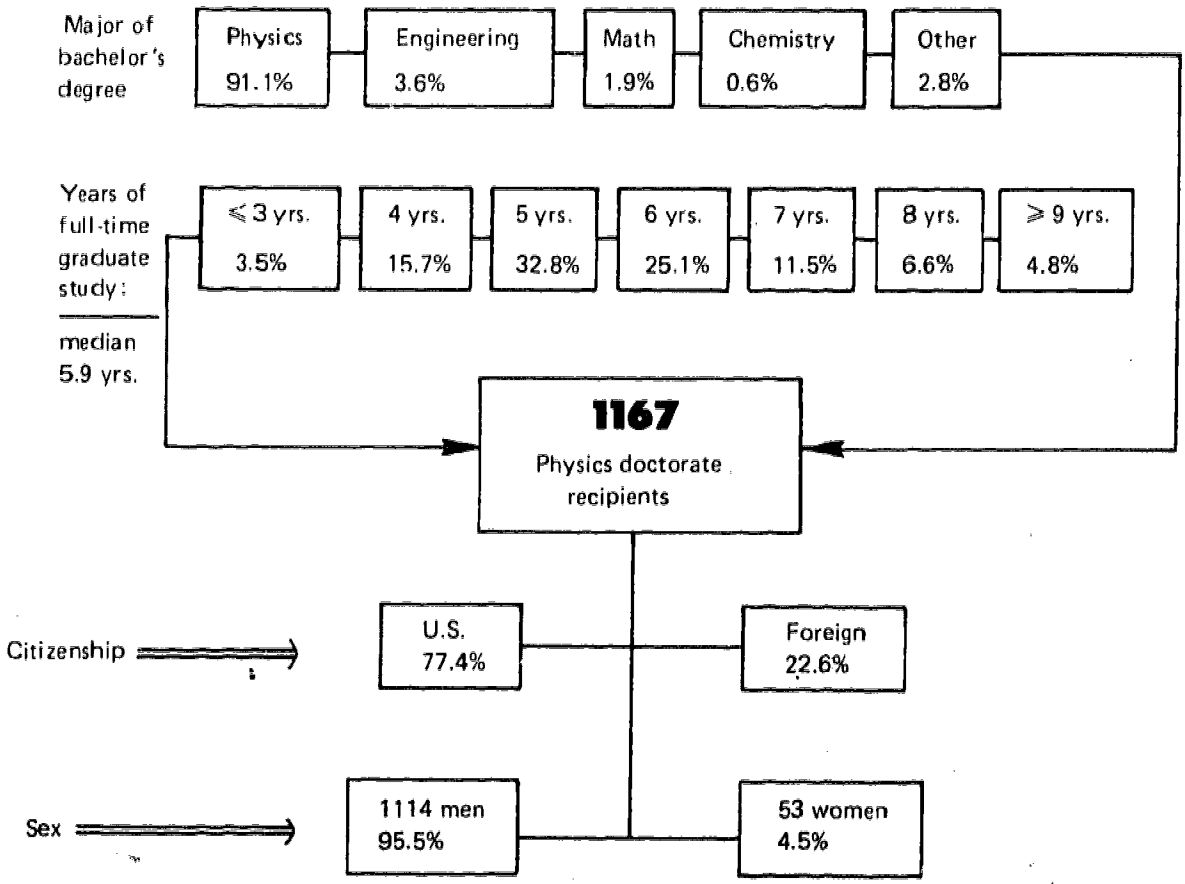


Table V. Employment offers* for 1974–75 graduate physics degree recipients by subfield

Physics subfield	Terminal master's				Doctorate			
	Percentage of degree recipients within each specialty received							
	Total in subfield	0 offer	1 offer	2 offers	Total in subfield	0 offer	1 offer	2 offers
Acoustics	3.2	12%	50%	38%				
Astrophysics	3.2	25	63	12	6.8	21	44%	35%
Atomic & molecular	3.6	22	33	45	13.3	8	62	30
Biophysics	3.4	22	33	45	3.0	5	53	42
Electronics & mag. physics	4.4	--	55	45				
Elementary particles	--		-	-	11.7	9	50	41
Fusion, plasmas			-	-	3.7	9	56	35
Nuclear	9.6	12	60	28	11.7	12	49	39
Optics	8.7	23	63	14	1.6	0	40	60
Solid state	14.3	20	44	36	31.6	9	59	32
Physics education	10.0	8	67	25				
General physics	22.2	39	48	13	-	-	-	-
Other subfields**	17.4	11	71	18	16.6	-	-	-
Total graduates	100%	20%	56%	24%	100%	10%	55%	35%
No. of respondents	262				661			

\- Fewer than 10 respondents

* Survey conducted during the summer of 1975

** Includes subfields such as atmospheric physics, physics of fluids, chemical physics and others.

The four characteristics of the 1974–75 doctorate recipients presented in **Figure III** indicate small but noteworthy changes from the previous year: For example the respective percentages of graduates whose bachelor's degrees were in physics, engineering, mathematics or chemistry, all increased, thereby reducing the percentage of doctoral candidates with other undergraduate majors from 5.8% to 2.8%. The category "other" includes primarily the life sciences; very few social science bachelors change to physics in graduate school. Another change is the decline from 26% to less than 23% in doctorate recipients who were graduate students for seven or more years.

The data presented in **Table V** form an important part of our evaluation of the employment market for individual physics subfields. Although astrophysics ranks among the subfields chosen by fewer than 10% of the doctoral candidates, nevertheless it has the highest percentage of graduates with zero job offers. In recent years employers complained about excessive specialization and a lack of broad training; it seems that the "general physics" group should satisfy that demand better than the other groups. Among the masters it may appear surprising that the group with the highest percentage of zero job offers is that without a specialty—general physics. The total percentages shown at the bottom of **Table V** were illustrated in **Figures I** and **II**.

It is important to note that these employment offers were reported during the summer of 1975 when at least some of the degree recipients had only started to explore the job market. But the reports with "zero offers" decline as the months pass, and the follow-up survey discusses this trend.

Many requests for information focus on whether or not the opportunities are better for graduates with an experimental background. **Table VI** would indicate an affirmative answer to that question by showing that only 8% of the experimentalists but 13% of the theoreticians had zero job offers. Also the highest percentage of multiple offers was reported by graduates whose doctoral programs included both experimental and theoretical research.

Table VI. Employment offers for 1974–75 physics doctorate recipients by type of research program

Doctoral research program		Number of offers 0	1	2	Total	%
Experimental	N	26	180	116	322	55%
	%	8	56	36	100%	
Theoretical	N	27	113	64	204	35
	%	13	56	31	100%	
Both	N	7	27	27	61	10
	%	11	44	45	100%	
Total	N	60	320	207	587	100%
	%	10	55	35	100%	

There is a continuing interest in the relationship between the subfield a student chooses in graduate school and the work activity of his first post-degree employment; **Table VII** presents those relationships for new doctorate-holders. Since graduating classes in recent years have included a large proportion of 'postdocs', most of whom engage in research regardless of their graduate school specialties, **Table VII** includes a subtotal to show the number of 'postdocs' for each work activity. Among the 576 doctorate recipients, 234 reported that they accepted

Table VII. Work activity and physics subfield for new doctorate recipients, 1974-75

Selected subfields of graduate study		Teach	Teach and res	Res	Res and dev	Eng.	Computer science	Mgt.	Nonphysics prof'l	Other	Total N	Total %
Astrophysics		2		27	3	3		--	--	1	36	6
Atomic and molecular		6	14	35	18	--	1	--	--	2	76	13
Biophysics			6	11	3	-	--	-	1	--	21	4
Elem. particles		6	11	42	8	-	1	-	1	--	69	12
Fusion, plasmas			4	11	6	-	-	-	-	--	21	4
Nuclear		4	10	45	5	--	2	1	--	1	68	12
Solid state		18	25	76	38	9	2	7	5	1	181	31
*All other subfields		9	13	55	23	1	1	--	1	1	104	18
No. of 'postdocs' included above		1	22	199	10	2	--	--	--	--	234	41
All subfields	N	45	83	302	104	13	7	8	8	6	576	
	%	8	15	53	18	2	1	1	1	1		100%

*Includes subfields such as atmospheric physics, physics of fluids, chemical physics and others

postdoctoral fellowships as their first employment. As in previous years fewer than 10% of the graduates start employment with straight teaching positions and only one or two percent enter management training.

As part of the Survey of Enrollments and Degrees physics department chairmen reported the total number of terminal master's degrees granted in physics to be 849 for the academic year 1974-75. Approximately 500 candidates for the terminal master's degree were identified by the chairmen on the lists of names. Questionnaires from individuals who responded to the Graduate Student Survey totaled only 325. The flow diagram of **Figure IV** analyzes the post-degree plans these graduates reported during the summer of 1975, and shows how the distribution of their occupations had changed when a follow-up Employment Survey was conducted six months later.

As one might expect the changes that occurred during that six month period reflect a reduction in the percentage of those who were uncommitted and sought employment. This percentage decreased from 27 to less than 5. While the percentage of respondents who change to other graduate study remains almost constant for the two surveys, the percentage who report full-time employment in the follow-up survey is considerably higher namely 76% than the 56% measured during the summer of 1975. Thus one can conclude that most of the graduates who are uncommitted at the time of graduation, find employment during the six-month period that follows, rather than having to return to graduate school for additional studies.

A recurring question from graduate students is what employment opportunities are there for doctoral physicists? **Figure V** attempts to answer that question by showing the choices new doctorate-holders make, and further classifying those who enter potentially permanent employment, into traditional and non-traditional work activities and employers. Perhaps an important item of information evident from **Figure V** is that 86% of those who choose immediate employment are engaged in traditional work activities and 94% work for a "traditional" employer.

The percentage of graduates who accept postdoctoral fellowships has declined by 3% from the previous year. On the other hand, many graduates among the 127 who were still uncommitted during the summer of 1975, will accept post-doctoral fellowships within the six-month period that follows; a comparison of **Figures V** and **VI** indicates a change from 32% to 48%. In the previous year that same increase for a corresponding six-month period was considerably smaller, namely from 35% to 43%.

To underline the statement that the demand for new doctoral-level physicists was not as great in 1975 as it was in 1974 a 4% increase, from 9% to 13% is shown for those who are unemployed and seeking employment, as well as an increase in the number of foreign graduates who return to their native countries.

Taking the mobility of physicists into account as they enter their careers we consider the total of 457 doctorate recipients a good response to the follow-up survey. The data in **Figure VI** have a similar arrangement to those in **Figure V** so as to facilitate a comparison. Again over 80% of the employed physicists report a traditional work activity and the percentage of graduates who are still uncommitted and seeking employment has decreased to 2%. Among the 216 employed physicists is the small group that started a military career and hence is included under "government".

The purpose of listing the graduate school specialties for those eleven doctorate recipients who were still seeking employment the following winter, is to show their diversity.

The 26 foreign graduates who returned to their native countries were not contacted in the follow-up survey.

Fig. IV. Flow Diagram Post degree employment of physics terminal master's degree recipients 1974–75

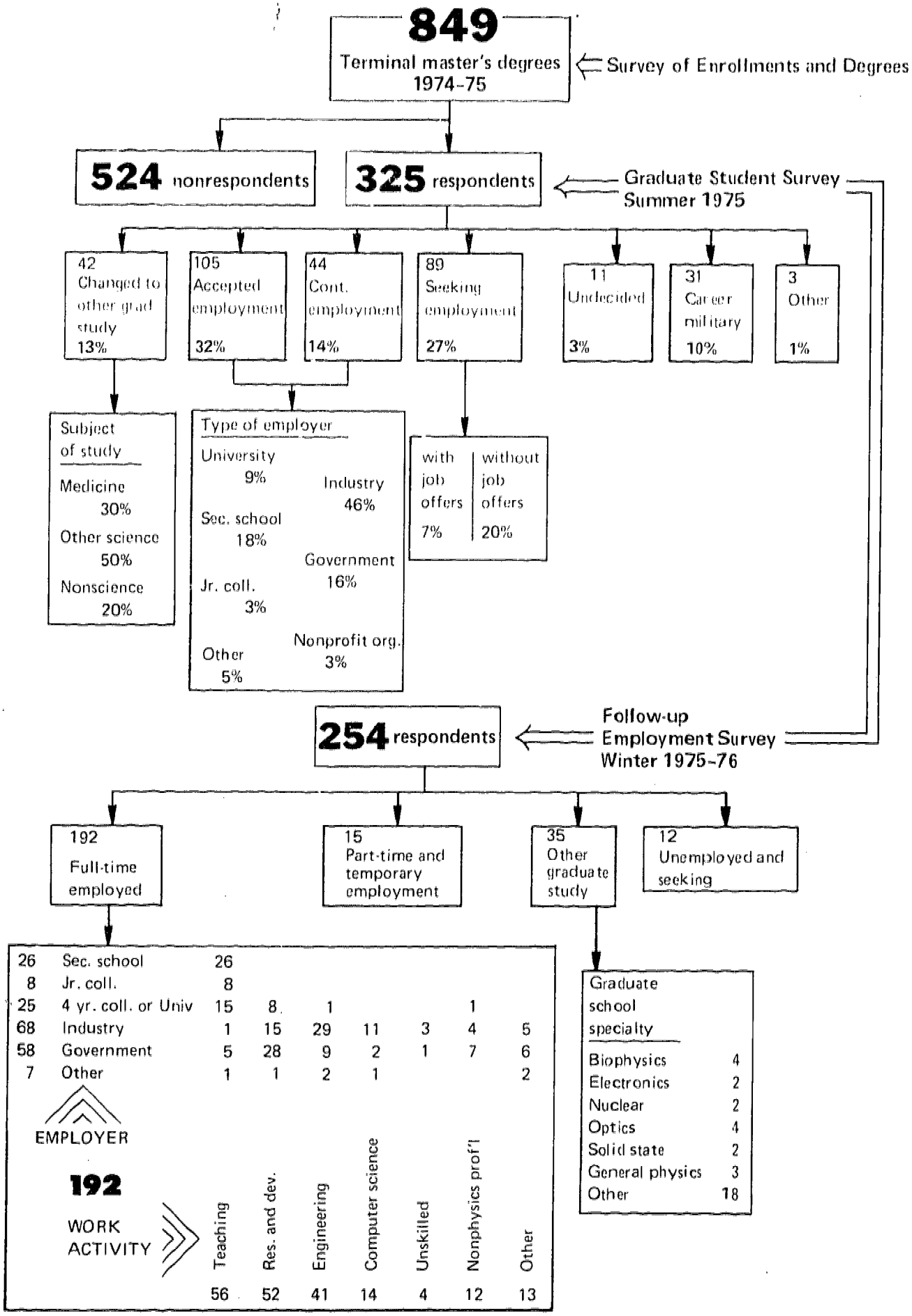


Fig. V. Post-doctorate status of 1974–75 graduates

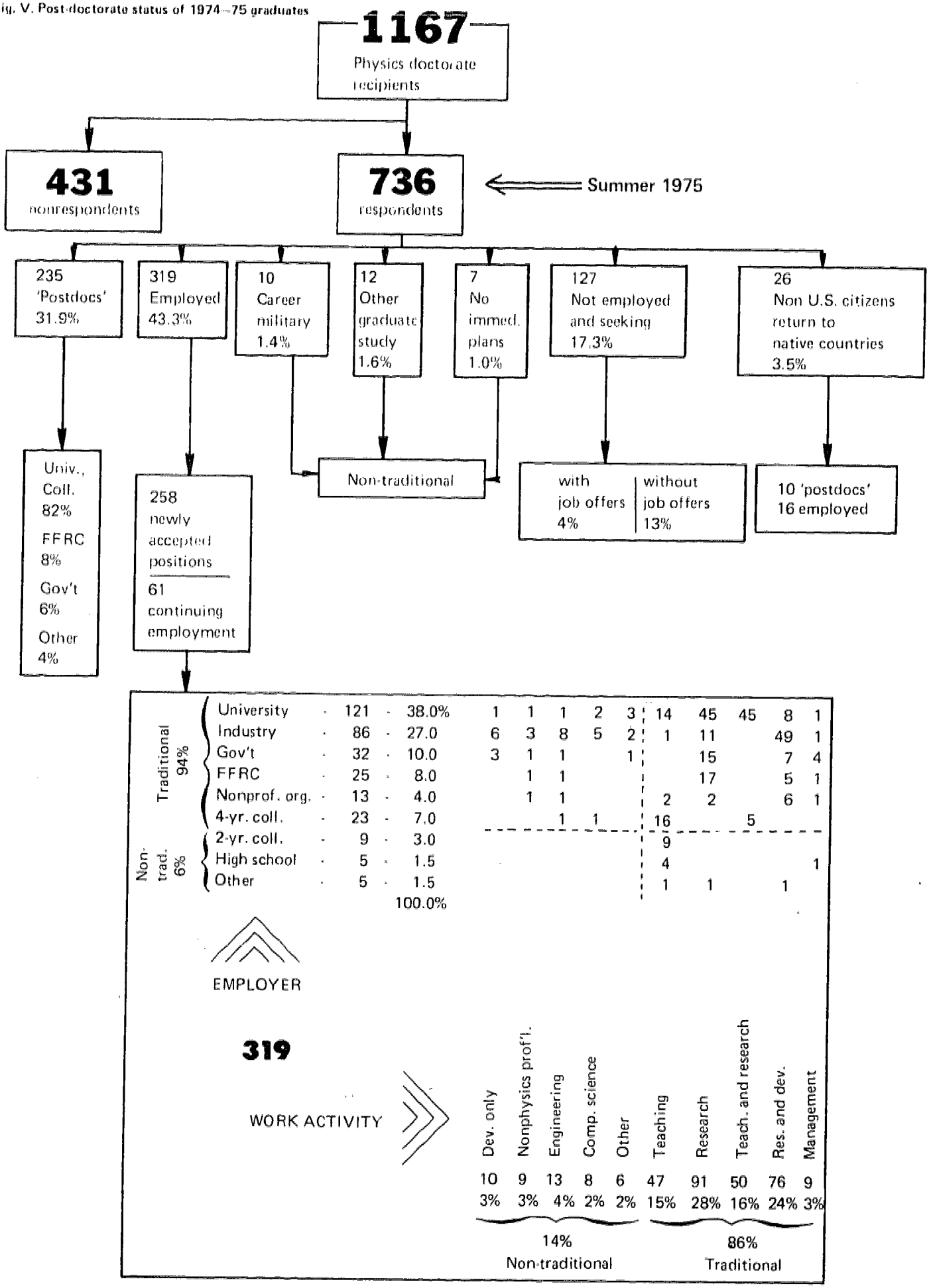


Fig. VI. Employment follow-up of 1974–75 physics doctorate recipients

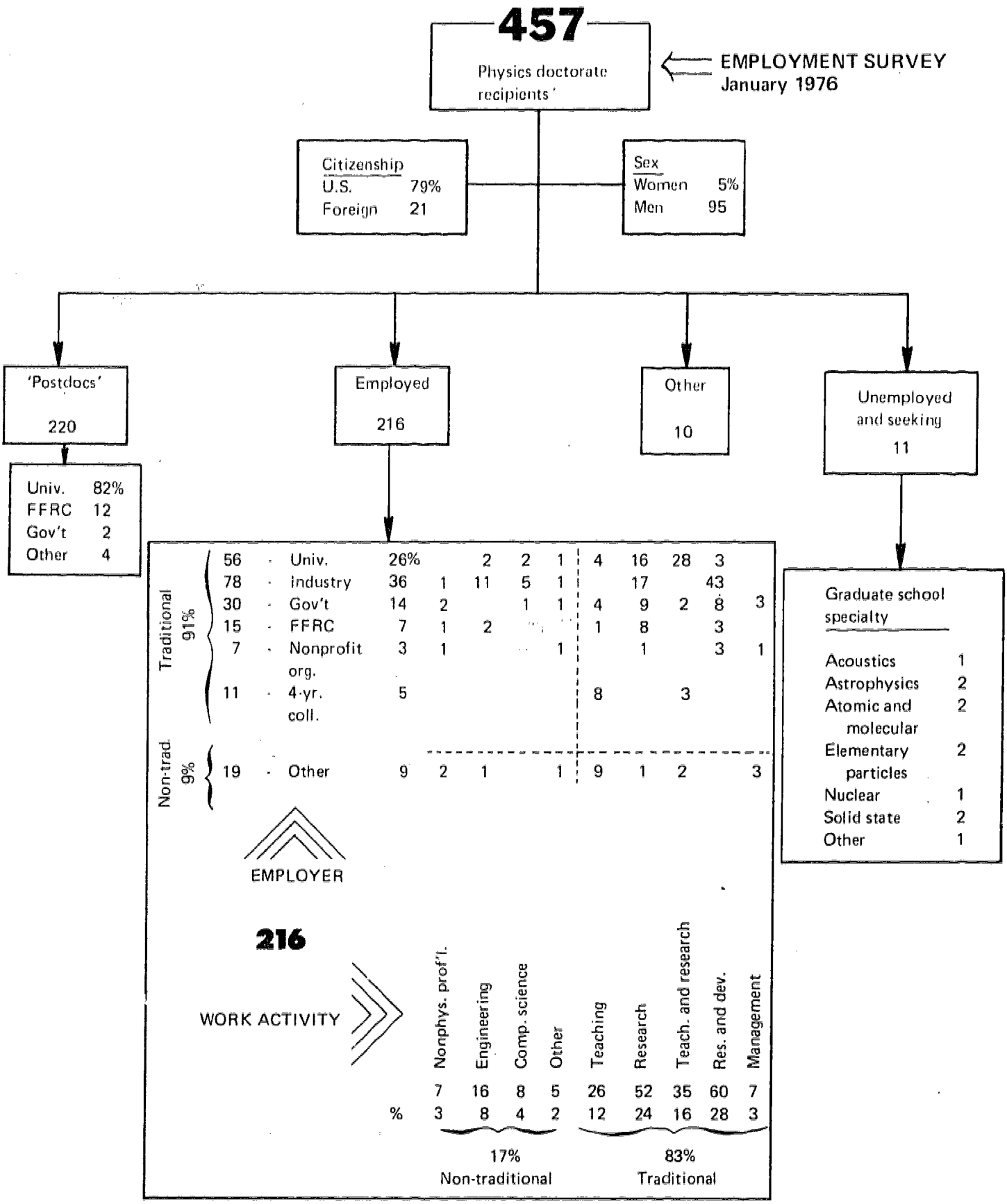


Table VIII. Initial employment of physics doctorate recipients, 1974-75

Location of employment	Citizenship of the graduate	Type of employment	Type of employer: Univ	4-yr coll.	Jr. coll. or secondary school	Industry	Gov't. or FFRC	Other	Total graduates N	%
UNITED STATES	U.S.	Potentially permanent	99	15	11	79	59	11	274	
		Postdoctoral	124	4	---	5	24	5	162	
	Foreign	Potentially permanent	23	2	---	8	---	2	35	
		Postdoctoral	54	1	---	1	4	---	60	
Subtotal			300	22	11	93	87	18	531	92%
FOREIGN COUNTRY	U.S.	potentially permanent	5	---	---	3	2	---	10	
		Postdoctoral	10	---	---	---	3	---	13	
	Foreign	Potentially permanent	11	1	---	1	1	2	16	
		Postdoctoral	8	---	---	---	2	---	10	
Subtotal			34	1	---	4	8	2	49	8%
Total			334	23	11	97	95	20	580	100%

In comparison with other disciplines physics attracts a large percentage of foreign graduate students. While many of them prefer to start employment in the U.S., their chances of finding potentially permanent positions have become limited in recent years. On the other hand, a comparison of the data shown in **Table VIII** with those of the two previous years points to an increase in the number of postdoctoral fellowships available in the U.S. Where employment opportunities in foreign countries are concerned, only 23 doctorate recipients with U.S. citizenship reported their initial employment in a foreign country; the year before 46 graduates out of a similar total cited foreign employers.

The salaries for new graduate degree recipients shown in **Table IX** represent a 7% increase for masters and a 3% increase for doctorate recipients over the previous year.

Table IX. Median monthly salaries** for new graduate physics degree recipients, 1975

Type of employer	Terminal master's recipients: Percentage accepting positions	Terminal master's recipients: Monthly starting salary	Doctorate recipients: Percentage accepting 'Postdocs'	Doctorate recipients: Potentially perm. pos.	Doctorate recipients: Postdoctoral fellowships	Doctorate recipients: Monthly starting salary
Secondary school	15%	$ 860	---	1%	---	*
4-year college	---	*	1%	4	*	$ 1 060
University	8	*	35	23	$ 955	1 050
Industry	38	1 125	1	16	*	1 530
Government	31	1 125	2	5	1 050	1 290
Fed. funded research centers	4	*	3	4	1 050	1 480
Other	4	1 050	1	4	*	*
All employers	100%	$1 100	100%		$ 980	$ 1 250

Fewer than 20 graduates reported salaries.

***The salaries shown in this table are based only on newly accepted positions.*

ASTRONOMY

In 1972 the Survey of Enrollments and Degrees was expanded to include astronomy data. Publication of those reports called attention to the number of astronomy students at different levels and resulted in requests for additional information on them. Thus, at the beginning of the academic year 1974-75 astronomy department chairmen were contacted with the request for the names of their graduate students and degree recipients to conduct the first survey of individual astronomy students. The results of this survey are highlighted in this report. The Survey of Enrollments and Degrees indicated a total graduate astronomy enrollment of 876 students for 1974-75; astronomy chairmen sent us 723 student names. After subtracting Post Office returns and students ineligible for this survey we counted 589 respondents.

Table X presents seven characteristics of two groups of students and two groups of degree recipients. Since this is the first survey of its kind, no comparisons with earlier years are available. However, a comparison with the 1974-75 graduate physics students shows that astronomers have a larger percentage of women and a smaller percentage of foreign students. Furthermore a higher percentage of astronomy students received their bachelor's degrees from PhD-granting institutions, and only 4%, as compared with 7%, of the physics graduate students are enrolled at master's-granting institutions.

Table XI presents the distribution of graduate students by level of graduate study and lists the seven major subfields. The sixth subfield listed, stellar atmospheres and spectra which includes solar and stellar interiors and stellar evolution appears to attract the largest number of graduate students. The lower part of the table presents an estimated number of students at each level of study and shows how many doctorate recipients there are among each of the advanced groups of students.

Table XII shows what type of support astronomy students get in relation to their subfield. While comparatively fewer graduate astronomy students than physics students hold teaching assistantships, 30% as compared with 37%, the proportion whose support consists of research assistantships or fellowships is very similar to that of the graduate physics students. Family savings or student loans though, are reported by only 3.5% of the physics students where **Table XII** shows 7% for that type of support.

Table X. Characteristics of astronomy graduate students and degree recipients, 1974-75

Characteristics		All graduate students	First-year graduate students	Terminal masters	Doctorate recipients
Sex	Female	13%	14%	25%	11%
	Male	87	86	75	89
Citizenship	U.S.	90%	95%	92%	87%
	Foreign	10	5	8	13
Type of high school physics	PSSC	35%	37%	17%	30%
	Project physics	2	7	---	---
	Other	57	46	75	68
	None	6	10	8	2
Type of bachelor's institution	PhD-granting	65%	63%	42%	72%
	MS-granting	9	11	25	6
	BS-granting	17	21	25	11
	Foreign	9	5	8	11
Type of graduate institution	PhD-granting	96%	88%	67%	100%
	MS-granting	4	12	33	---
Student status	Full-time	92%	96%	83%	75%
	Part-time	8	4	17	25
Sources of support	Teach. ass'tship	30%	43%	25%	7%
	Res. ass'tship	35	13	25	49
	Fellowship	12	20	---	5
	Employment	9	3	17	25
	Family, savings, loan	7	10	8	9
	Other	7	11	25	5
No. of respondents		589	112	17	63
Total graduate students*		843	162	41	96

**These totals were reported by astronomy department chairmen as part of the Survey of Enrollments and Degrees.*

Table XI. Graduate astronomy students enrolled during 1974-75 by subfield and years of graduate study completed

	Full-time equivalent years of graduate study						Total graduate students	
	1 yr.	2 yrs.	3 yrs.	4 yrs.	5 yrs.	≥ 6 yrs.	N	%
Distribution of students:	20%	21%	17%	18%	15%	9%	876*	100
Astronomy subfields								
Instruments and techniques	12%	12%	9%	8%	0%	6%	70	8
Cosmology	19	17	18	9	22	23	150	17
Galactic structure	13	6	8	9	9	4	70	8
Interstellar matter	7	13	12	15	14	13	105	12
Solar system	4	7	9	7	5	8	53	6
Stellar atmospheres and spectra	27	24	28	33	28	27	245	28
Supernovae	3	10	5	5	9	4	53	6
Other subfields**	15	11	11	14	13	15	130	15
	100%	100%	100%	100%	100%	100%		100%
Estimated number of students	175	184	150	158	130	79	876	
Estimated number of doctorate recipients	---	---	9	30	38	19	96	

**The percentages shown in this table are based on 580 respondents to the Graduate Student Survey. As part of the Survey of Enrollments and Degrees astronomy department chairmen reported a total graduate enrollment of 876 students.*

***Other subfields include: binary stars, planetary atmospheres, relativistic astrophysics, the sun and other specialties.*

Table XII. Sources of support of astronomy graduate students by subfield

Subfield of graduate study	Distr. of graduate students:	SOURCES OF SUPPORT: Teaching ass'tship 30%	Research ass'tship 35%	Fellowship 12%	Employment 9%	GI Bill 4%	Family savings, loan 7%	Other 3%	Total N	Total %
Instruments and techniques		9%	8%	10%	9%	9%	10%		70	8
Cosmology		18	18	14	9	14	26	25%	150	17
Galactic structure		9	4	14	15	5	18	6	70	8
Interstellar matter		11	14	13	8	9	15	13	105	12
Solar system		4	9	3	8	9	5	13	53	6
Stellar atmospheres and spectra		36	25	24	25	41	13	13	245	28
Supernovae		5	8	10	4	--	3	--	53	6
Other subfields**		8	14	12	22	13	10	30	130	15
		100%	100%	100%	100%	100%	100%	100%		100%

* *The percentages shown in this table are based on 580 respondents to the Graduate Student Survey. As part of the Survey of Enrollments and Degrees astronomy department chairmen reported a total graduate enrollment of 876 students.*

***Other subfields include: binary stars, planetary atmospheres, relativistic astrophysics, the sun and other specialties.*

Figure VII focuses on the 1974-75 astronomy doctorate recipients from whom we have 63 individual responses. Only 5 graduates reported no employment offers and a higher percentage than the physicists had accepted postdoctoral fellowships, 41% shown in Figure VII compared with 32% for the physics graduates. Another difference between the astronomy and the physics doctorate recipients appears to be the median years of graduate study spent to acquire that degree; it is 5.3 years for astronomy and 5.9 years for physics.

Fig. VII. Flow diagram—Background characteristics and post-doctorate plans of 1974-75 degree recipients