

Physics Doctorates One Year Later

Data from the follow-up survey of degree recipients from the classes of 2007 and 2008

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REPORTS ON PHYSICS DOCTORATES

Physics Doctorates, One Year
Later (November 2010)

Physics Doctorates, Initial
Employment (*forthcoming*)

Physics Doctorates, Skills Used
and Satisfaction with Employment
(*forthcoming*)

Physics Doctorates, Demographic
Profiles (*forthcoming*)

Astronomy Doctorates
(*forthcoming*)

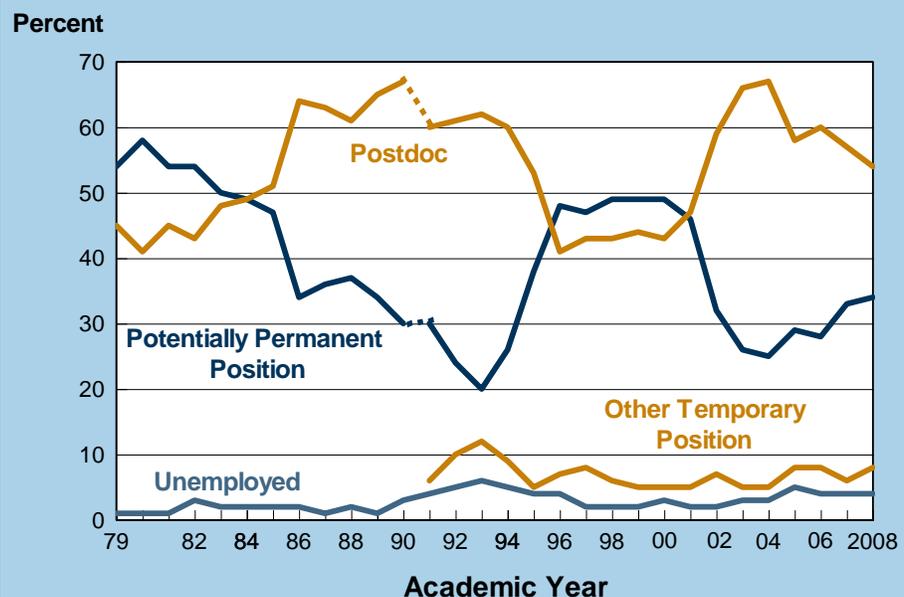
*The proportion of new
physics PhDs
accepting a postdoc
has declined from 67%
to 54% since 2004.*

THE 2007 AND 2008 FOLLOW-UP SURVEYS OF PHYSICS DOCTORATES

Physics doctorate recipients are contacted in the winter following the academic year in which they receive their degree. They are asked to share both objective and subjective information concerning their employment. This *focus on* series describes our findings.

Figure 1

Initial employment of physics PhDs, 1979 through 2008.



In 1991, the survey questionnaire was changed to measure "other temporary" employment as a separate category.

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

The proportion of new physics PhDs accepting potentially permanent positions has been increasing in recent years. This has been balanced by a drop in the proportion accepting postdoctoral fellowships, which still comprises over 50% of the PhDs in the class of 2008. A relatively small and constant percentage of new PhDs were unemployed in the winter following the academic year they received their degrees. Unemployment rates are not a good job market indicator for physics PhDs or PhD scientists in general.

A proportion of each PhD class does not remain in the US after receiving their doctorates. About 20% of non-US citizens and about 8% of US citizens left the US after receiving their degree. The analysis in this *focus on* is limited to PhDs who received their degree from a US physics department and remained in the US.

Table 1

Initial employment status of physics PhDs by citizenship, classes of 2007 & 2008.

	US Citizens %	Foreign Citizens %	Overall %
Postdoc	49	61	56
Potentially permanent	39	27	33
Other temporary	8	7	7
Unemployed	4	5	4

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

A larger proportion of non-US citizens accept postdocs than do US citizens.

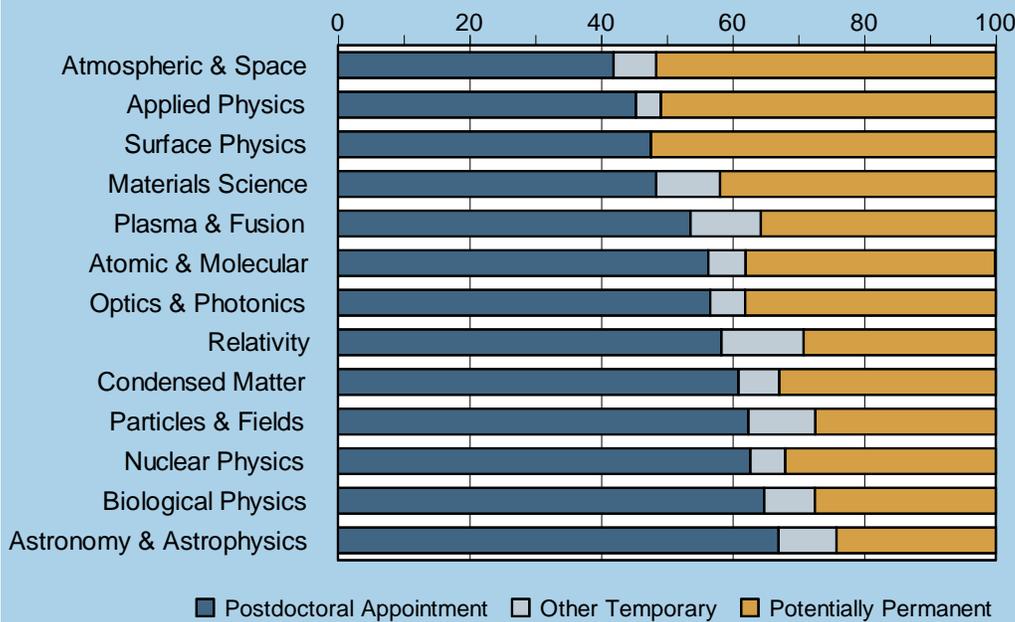
As has been historically true concerning the initial employment of new physics PhDs, a greater proportion of non-US citizens accepted temporary postdoctoral appointments than were accepted by US citizens. The proportion of both US citizens and non-US citizens accepting postdocs has been declining in recent years. A little over half of the non-US citizens accepting postdocs held H1-B visas and 8% had permanent resident status. In comparison, two-thirds of the non-US citizens accepting potentially permanent positions held H1-B visas and about a fifth were permanent residents.

A small percent (7%) of new doctorates accepted temporary positions other than postdocs. About 50% of these were visiting professor positions or lecturer positions at colleges and universities, overwhelmingly at physics departments. The remainder were scattered across other educational institutions, hospitals, the private sector, and national labs.

Although the majority of new PhDs were working in a postdoc in the winter following the academic year in which they received their degrees, there were differences in the proportion of PhDs accepting a postdoc when the subfield of research was taken into consideration. New PhDs with dissertation subfields of astrophysics and biological physics were the most likely to have accepted a postdoc. PhDs with subfields of surface physics, atmospheric & space physics, and applied physics were the least likely to accept a postdoc, with over half accepting potentially permanent positions.

Figure 2

Initial employment of physics and astronomy PhDs by subfield of dissertation, classes of 2007 & 2008.



PhDs with dissertation subfields of astronomy and astrophysics were the most likely to have accepted a postdoc.

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

Table 2

Postdocs from the classes of 2007 & 2008: “What was the most important reason for taking this temporary position?”

	Percent
Necessary step to get desired future position	37
To obtain research experience in my field	25
To work with a particular scientist or research group	16
Could not obtain a suitable permanent position	7
To switch to a different field	6
Personal or family-related reasons	4
Visa restrictions limited my options*	2
Other	1

*6% of foreign citizens with temporary visas indicated they took a postdoc because of visa restrictions.

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

Over a third of the physics PhDs accepting a postdoc indicated they did so because it was the necessary step to further their careers.

There were many reasons why individuals chose to follow a particular career path and their ultimate decision was based on a combination of these influences. New PhDs who accepted postdocs were asked to indicate from a list of potential reasons which was the most important reason for choosing to accept a postdoc. This question has been asked of new PhDs for a number of years and the reason most frequently cited is consistently: “It is a necessary step to get desired future position.”

Seven percent of the postdocs indicated the most important reason they took such a position was because they “could not obtain a suitable permanent position.” Forty-two percent of PhDs accepting other temporary positions provided a similar response.

Survey Methodology

Each fall the Statistical Research Center conducts its Survey of Enrollments and Degrees, which asks all degree-granting physics and astronomy departments in the US 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 degrees. The data in this *focus on* comes from that survey.

Recent degree recipients can be very difficult to reach because they tend to move after receiving their degrees. Many times the departments do not provide or don't 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, when possible.

The follow-up surveys for the classes of 2007 and 2008 were administered in a web-based format. Non-responding degree recipients were contacted up to four times with invitations to participate in the survey. The physics PhD classes of 2007 and 2008 consisted of 1,460 and 1,499 PhDs, respectively. We received post-degree information on 54% of these degree recipients. Thirty-one percent of our responses came from advisors, and the remainder came from the PhD recipients themselves. The information obtained from the advisors is limited to subfield of dissertation, citizenship, sex, employment status, sector of employment, and location (in or out of the US). PhDs who left the US after receiving their degree are not included in the analysis.

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