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focus on

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Physics Doctorates One Year After Degree

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

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REPORTS ON PHYSICS DOCTORATES

Physics Doctorates, One Year Later (January 2016)

Physics Doctorates, Initial Employment (*forthcoming*)

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

The proportion of new physics PhDs accepting postdocs has been declining in recent years.

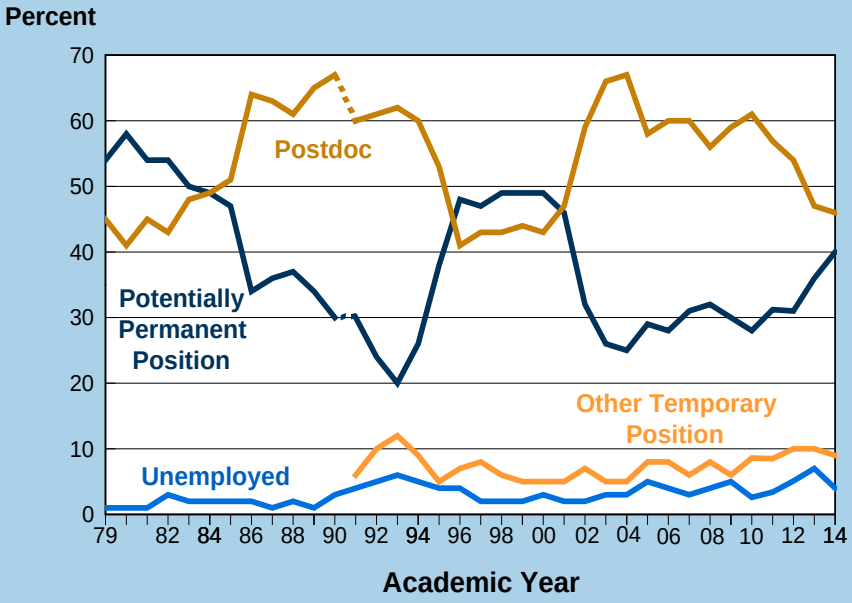
THE 2013 AND 2014 FOLLOW-UP SURVEYS OF PHYSICS DOCTORATES

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

The proportion of new physics PhDs accepting potentially permanent positions has been on the rise in the past few years. This increase has resulted in fewer than 50% of the new graduates accepting postdoctoral appointments (**Figure 1**).

Figure 1

Initial Employment of Physics PhDs, 1979 through 2014.



In 1991, the survey questionnaire was changed to measure "other temporary" employment as a separate category. Data are limited to PhDs who earned their degrees from a US university and remained in the US.

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The percentage of new physics PhD recipients accepting potentially permanent positions has increased over the last 4 years, reaching its highest point (40%) since the class of 2002. Reflecting this change, the proportion of degree recipients accepting postdoctoral fellowships has been declining.

The tables and figures in this *focus on* include physics PhDs from the classes of 2013 and 2014 who received their PhD from a US institution and who remained in the country for their initial employment. Among the survey respondents, 23% of non-US citizens and 8% of US citizens left the country after receiving their doctorates. Regardless of citizenship, the most common initial employment of new PhD recipients who left the country was a postdoctoral fellowship.

Almost half of new PhDs who remained in the US took postdocs.

Table 1

Initial Employment of Physics PhDs by Citizenship, Classes of 2013 & 2014 Combined.

	US Citizens %	Non-US Citizens %	Overall %
Postdoc	43	52	47
Potentially permanent	40	35	38
Other temporary	11	9	10
Unemployed	6	5	5
	100	100	100

Data are limited to PhDs who earned their degrees from a US university and remained in the US.
Data based on the responses of 831 US citizens and 549 non-US citizens.

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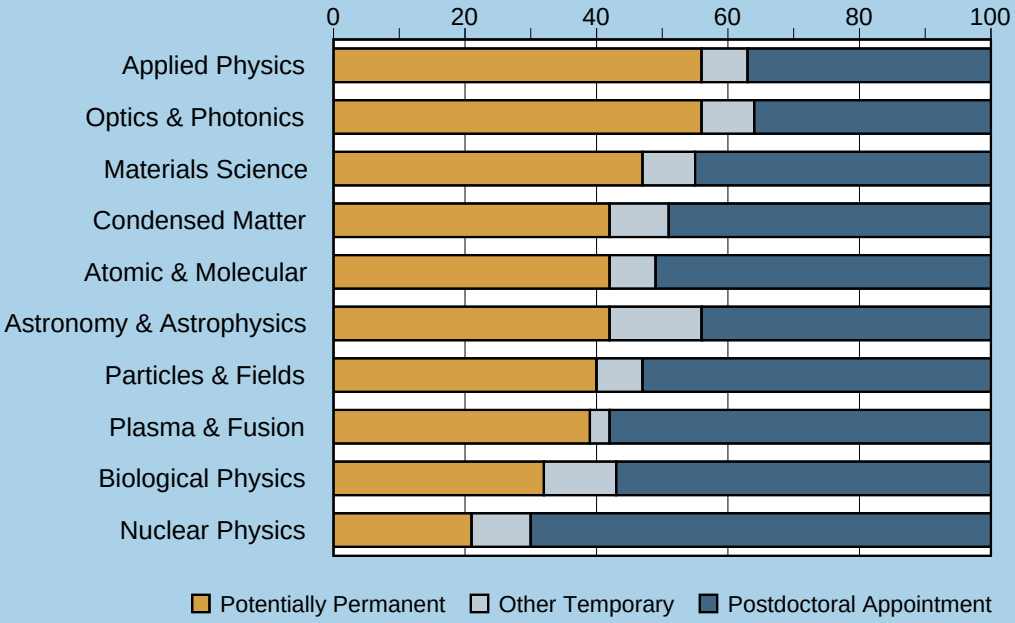
Non-US citizens accounted for 48% of all PhD recipients from the classes of 2013 and 2014 combined. This group was more likely to accept postdoctoral fellowships (52%) than their US citizen counterparts (43%) (**Table 1**).

One in ten of new physics PhD recipients accepted temporary positions that were not classified as postdocs. Job titles for these other temporary positions included visiting professor, lecturer and research scientist.

Depending on their dissertation subfields, degree recipients may be more likely to accept potentially permanent positions than postdoctoral fellowships. More than half of physics PhDs with subfield specializations of applied physics or optics and photonics accepted potentially permanent positions. Degree recipients in nuclear physics were the most likely to accept postdoctoral fellowships (**Figure 2**). The number of degree recipients in a subfield has no bearing on their initial employment outcome. For example, the most common subfield of study was condensed matter, which had a similar number of recipients accepting postdoctoral fellowships as atomic and molecular physics, which had less than a third as many degrees conferred.

Figure 2

Initial Employment of Physics PhDs by Subfield of Dissertation, Classes of 2013 & 2014 Combined.



Data are limited to PhDs who earned their degrees from a US university and remained in the US.

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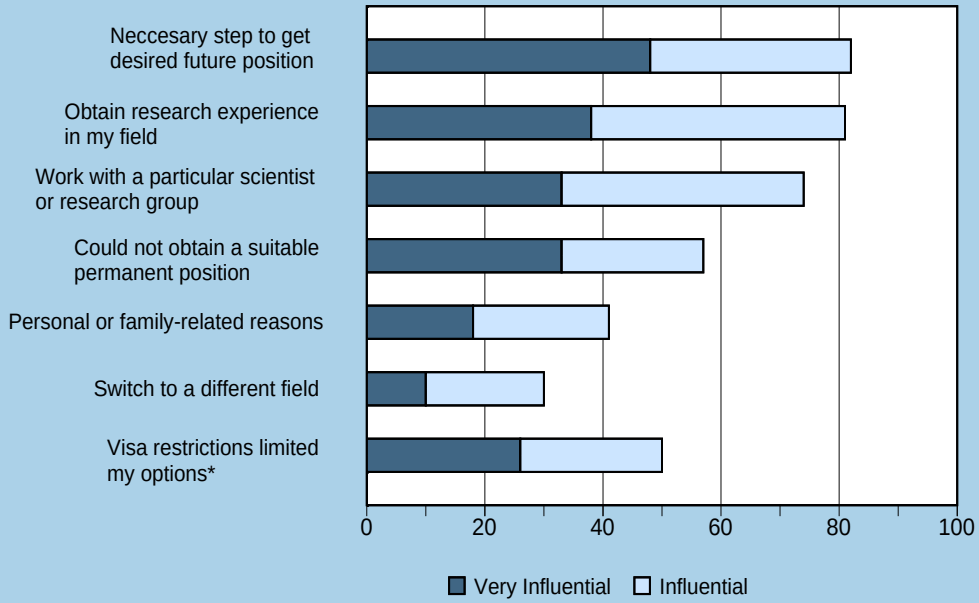
Initial employment outcomes of new physics PhDs are affected by their subfield of doctoral research.

Figure 3

Many of the new physics PhDs who accepted postdocs indicated that future career plans influenced their decisions.

Reasons for Accepting a Postdoctoral Fellowship, Class of 2014



Data are limited to PhDs who earned their degrees in the class of 2014 from a US university and remained in the US. Respondents were asked to rate the level of influence each statement had on why they took postdoctoral fellowships. They were presented a four point scale that included "very influential", "influential", "of little influence", and "not at all influential".

*The data on "visa restrictions limited my options" are limited to non-US citizens.

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There are a variety of reasons for new PhD recipients to take temporary postdoctoral appointments. Decisions can be influenced by both professional goals and personal circumstances. The two reasons indicated as having the greatest influence were both career-oriented influences: "necessary step to get a future position" and "obtain research experience in their fields." About half of non-US citizen postdocs indicated that visa restrictions influenced their decisions to take their fellowships.

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 U.S. to provide information concerning the number of students they have enrolled and the 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 the *focus on* comes from that follow-up survey.

Recent degree recipients can be very difficult to reach because they tend to move after receiving their degrees. Additionally, many 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 2013 and 2014 were administered in a web-based format. Non-responding doctorates were contacted up to four times with invitations to participate in the survey. The physics PhD classes of 2013 and 2014 consisted of 1,743 and 1,803 respectively. We received post-degree information on about 48% of these degree recipients. About 54% of these responses came from PhD recipients themselves, while the other 46% came from advisors. The information obtained from advisors is limited to subfield of dissertation, US citizenship, sex, employment status, sector of employment, and location (in or out of the US). PhDs who left the US after receiving their degrees were not included in the analysis.

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

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