Issue Brief: Visa Uncertainty and Inaction Drives Declines in International Enrollment

APS Survey of PhD-Granting US Physics Departments

A Report by the American Physical Society
Government Affairs

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Summary

New APS survey results reveal that more than two-thirds of the international, first-year physics PhD students who were slated to enroll in fall 2020 are still not on campus due to uncertain US visa policies. Maintaining US competitiveness requires immediate action by the State Department to provide a clear timeline and guidance for international STEM graduate students currently waiting to obtain their visas to study in this country and Congress passing visa and immigration policies that attract, rather than deter, international talent.

Background

Recent surveys by the American Physical Society (APS) of the chairs of PhD-granting physics departments at US institutions reveal that the United States' ability to attract the best and brightest international students is waning. The combination of travel restrictions and visa delays stemming from the COVID-19 pandemic—along with US visa and immigration policies that dissuade, rather than attract, international students—has created a significant hole in our nation's STEM talent pipeline.

Based on survey data collected in fall 2020, we estimated there was a 30% decline in international, first-year physics PhD students enrolled in fall 2020 than in fall 2019.[1] New department chair survey data demonstrate that not only have we yet to recover from the 2020 enrollment drop, but the situation is worsening.

The tremendous uncertainty that international students are facing with respect to obtaining visas is negatively impacting the United States in the competitive race for global talent. Ultimately, this will result in fewer physics graduate students conducting leading-edge research, and—absent actions to address the challenges—fewer physics PhDs entering the US STEM workforce in the coming years. With all of the unpredictability created by the pandemic, one thing is certain: the federal government must act immediately to shore up our international STEM talent pipeline and sustain US economic competitiveness.

> **"The visa issue is a major problem for our PhD program. In the long run, it will erode the biggest advantage that the US universities have: the ability to attract the best and brightest from all over the world to come to the US."**
>
> Department Chair at a Top 20 Physics Program

1 American Physical Society Government Affairs, Building America's STEM Workforce: Eliminating Barriers and Unlocking Advantages (01/2021)

Survey Results

Despite physics departments' efforts to bring their fall 2020 cohort of international, first-year PhD students to campus, new APS survey results show that challenges persist. New data from a May 2021 APS survey of physics department chairs show that fewer international, first-year students were able/chose to enroll in US physics PhD programs for fall 2020.

Driving these additional decreases is the lack of any certainty for when an international student actually will be able to make it to a US university's campus. **As shown in Fig. 1, more than two-thirds of the international, first-year physics PhD students who were slated to enroll in fall 2020 are still not on campus.** And while top-tier US physics programs previously appeared to be insulated from such enrollment reductions, that is no longer the case. **Only one out of every five international students successfully recruited to attend a top-20 US physics department for fall 2020 is currently on campus** making contributions to the US scientific enterprise. This significantly reduced student cohort is due to the students' continued inability to obtain the visas necessary to enter the United States and—absent any certainty of when they may be able to enter the country – some students choosing to defer their enrollments.

> **"We were more careful this year in considering international applicants, given the uncertainties of whether they would be able to make it to the USA by late August–our start date."**
>
> Department Chair at a Large Physics Program

Looking forward, US physics departments will continue to lose out on talented international students at least until there is a reliable timeline for students to obtain the necessary visas. The enrollment for fall 2021, for example, is projected to be well below the fall 2019 enrollment level, based on the number of international students who have accepted offers from US physics departments.

Figure 1

Current Status of International First-year PhD Physics Students that Accepted Offers in Fall 2020 at US Institutions

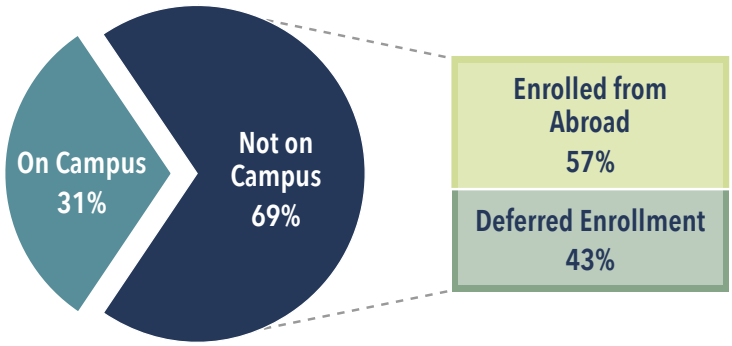
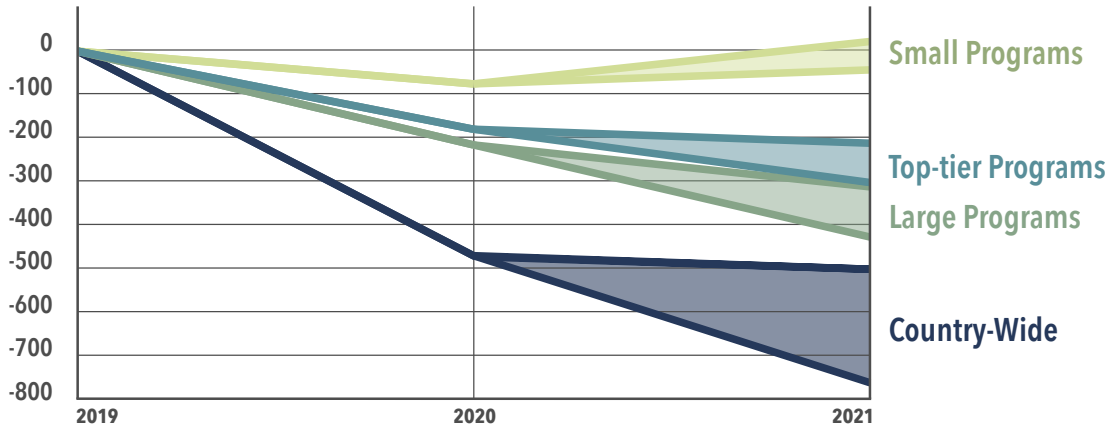


Figure 2 displays bracketed ranges of projected cumulative gaps in the number of international, first-year physics PhD students for fall 2020 and fall 2021 for each category of department, as compared to 2019. **Our data projects that during the course of just two years, we will lose between approximately one-quarter and one-third of international, first-year physics graduate students at US institutions compared to simply maintaining the fall 2019** enrollment levels. Even in the best case scenario, where all of the students who chose to defer their enrollment in fall 2020 enroll in fall 2021, the US would still lose 500 talented international physics graduate students to competitor nations during the last two years.

Figure 2

Cumulative Projected US Deficit of First-year International PhD Students



The current visa uncertainty is impacting physics department decisions. **When specifically asked if their experiences with the fall 2020 cohort led to modification of their admissions, approximately 40% of physics department chairs replied in the affirmative, with more than half of those citing uncertainty with US visas as a top challenge to their ability to make offers and secure talent.** Some physics departments now are using criteria other than a prospective student's qualifications—e.g. country of origin—in determining their admission.

Absent a definite timeline for talented international students to secure the visas necessary for them to study in the United States, there is significant risk for both international students to pursue their education at a US institution and for departments to accept international students without any indication of when they will make it to campus. In the race for global talent, the current uncertainty for students to obtain visas is putting the United States at a competitive disadvantage.

Challenges and Policy Responses

The new APS survey results show that there are two pressing issues that must be addressed immediately:

1. the hole created in the US STEM talent pipeline in fall 2020 has not been repaired, and it is worsening; and

2. to account for uncertainties in visa processes for international students, some US physics departments are modifying their graduate admissions criteria—i.e. they are no longer simply admitting international students based solely on their academic/scientific records but now also consider the likelihood that a student will be able to make it to campus.

Additionally, US visa policies should be an asset to recruiting the world's best and the brightest, not a deterrent. Previous APS surveys[1] showed that international students and early career scientists want to pursue their degrees in countries where they are able to stay and have a career after graduation. In a fall 2020 APS survey of international early-career students and scholars, **nearly 90% of respondents agreed that they were "more likely to consider applying to graduate school or postdoc in a country that has a clear path for me to stay and work once I finish my degree or PhD."**

Today's landscape is simply too competitive to ignore what the world's top STEM talent is seeking—a nation that does not create unnecessary barriers for them to go and study there and, upon graduation, provides them a clear path to stay and have a successful career. In addition to clear timelines and policies in the visa process, the direction for policymakers is clear—the United States needs 21st century visa and immigration policies that will attract and retain top global talent for its 21st century workforce. Specifically, the following policy responses would have an immediate and substantial impact:

- The US Department of State should provide a clear timeline and guidance on when and how international PhD students who have accepted offers to attend US institutions will be able to obtain the visas necessary to enter the country.

- As part of any immigration legislation, Congress should include provisions to: (1) authorize international students pursuing advanced STEM degrees to express their intent to stay in the US and pursue their careers post-graduation and (2) provide any international student who earns a PhD in a STEM discipline a clear path to a green card by exempting them from any green card caps.

1 American Physical Society Government Affairs, Building America's STEM Workforce: Eliminating Barriers and Unlocking Advantages (01/2021)

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