

Building consensus for establishing a Physics Bridge Program at Ohio State University

The OSU Physics M.S.-to-Ph.D Bridge Program Team:

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Outline

- **Some background events & history at OSU**
- **Building excitement in a core group of faculty and staff**
- **Initial reaction from faculty**
- **The Faculty Meeting**
- **Getting other people involved**
- **Summary**

Some Background history and events

- Many years ago, we admitted a number of “non-standard” and underprepared students with scholarships. Most were not successful in graduate physics courses. This created a feeling among a number of faculty that “special programs don’t work”.
- In recent years, increasing diversity has become more important at OSU, and much activity and resources have been devoted to increasing URM student participation [*e.g.* creating Diversity Offices, offering Enrichment Fellowships, REU programs, recruiting events and general recruiting trips to MSI’s, Puerto Rico, URM conferences].
- These efforts did not have much success for attracting STEM grad students – we had very few “traditionally-qualified” URM applicants.

Increasing awareness of existence and effectiveness of Bridge Programs

- for me this came from a talk by Frank Bayliss (San Francisco State U.). Since the 1990’s Bayliss has been running an NSF-funded M.S. Bridge Program for Chemistry and Biological Sciences. He described this program as a “farm system” for Ph.D. programs.

From 2008 (?) presentation by Frank Bayliss
[San Francisco State University (SFSU)]

“Students with Promise”

SFSU MS URM Bridge students with low entering GPA's

At Admission

Name	Eth	UG GPA	Undergrad. Institution
	AA	2.00	Williams
	AA	2.20	USC
	HA	2.31	SFSU
	AA	2.36	SDSU
	HA	2.37	UC Berkeley
	PI	2.42	UC Berkeley
	HA	2.45	SFSU
	AA	2.48	UC Davis
	AA	2.50	UCLA
	HA	2.50	UC Berkeley
	AA	2.60	UCLA
	AA	2.60	SFSU
	AA	2.60	UC Berkeley
	HA	2.62	West Wash U
	HA	2.69	SFSU
	HA	2.71	UC Davis
	HA	2.71	UCLA
	PI	2.74	SFSU
	AA	2.75	Xavier
	AA	2.80	Howard U.
	PI	2.81	UCSD
	PI	2.85	UC Berkeley
	PI	2.89	UC Davis
	HA	2.90	UC Irvine
	HA	2.91	UCSB
	PI	2.93	SFSU

At MS Graduation

MS GPA	PhD Institution	PhD Date Admitted	PhD Date Completed	Post-Doc
3.53	Stanford U.	2004	Current	
3.86	Harvard U.	1999	2007	Applying
3.45	U. Washington	2002	2007	UWash F.H. CanCt
3.79	UC Berkeley	2006	Current	
3.54	UC Davis	1994	2000	LLNL
3.61	UC Davis	1993	1999	Harvard U
3.70	Johns Hopkins U	2003	Current	
3.83	Oregon St. U	2001	2006	Industry
3.59	Cal. Tech.	2004	Current	
3.87	UC San Francisco	2000	2007	Applying
3.70	Washington St. U	1999	2003	Beth Navy Hosp
3.39	Albert Einstein	2003	Current	
3.44	Emory U.	2001	2006	Morehouse Med
3.81	UC Davis	2004	Current	
3.57	UC Davis	1997	2002	U.Wisc/U.Georgia
3.78	UC San Diego	1996	2002	UCSD
3.72	UC San Francisco	2007	Current	
3.67	UC Davis	2004	Current	
3.54	UC Davis	2006	Current	
3.49	Harvard U.	2000	2007	Applying
3.85	VA Inst Marine Sci	1997	2004	FL Gulf Coast U
3.91	U Wash	2005	Current	
3.87	UC Berkeley	2000	2005	UCSF
3.44	Northwestern U	2004	Current	
3.67	UC Davis	2004	Current	
3.90	UC Berkeley	2004	Current	

Other events:

- In 2008, we had an “activist” group of young faculty on our graduate admissions committee, and we started to use different evaluation procedures in our to identify “students with potential”, especially for women. It worked!
- Had one particular experience with a highly-motivated REU student with great research potential, but very low UG grades. We did not think he would not pass our Grad physics courses if admitted directly into our Ph.D. program. He went to the Michigan Bridge Program!
- Increasing NSF pressure for “Broader Impacts”, especially in our MRSEC.
- Frequent lunch-time discussions with a group of faculty (many young and with experience on our grad admissions committee) created a dedicated core group, committed to work to establish a bridge program.

Our first foray with the broader faculty, in Spring of 2011:

During a Grad Studies Meeting, we proposed a Bridge Program in conjunction with an NSF PREM proposal. This was met with considerable mistrust: things:

- (1) “Special programs don’t work – we tried that before”
- (2) We don’t want to “lower our standards” for admission into the Ph.D. program
- (3) A Bridge Program would be a “back door” way into the Ph.D. program
- (4) Suspicion that this was an attempt by Condensed Matter faculty to divert Department resources to CM

More events in 2012:

-Administrators felt increasing need to address diversity in STEM, and became willing to invest significant resources in promising new approaches. We got significant commitment to support a Bridge Program from the College, the Physics Chair, and our MRSEC.

-Learned about the APS Bridge Program and the APS Bridge Site RFP.

Faculty Meeting (Fall 2012)

- Proposal to develop and implement a two –year M.S.-to-Ph.D Physics Bridge Program at OSU. (about 2 students/year, steady-state cohort of 4).
- APS is supporting bridge programs to increase diversity, and may be able to provide some financial support.

The Bridge Program ...

- **would not lower standards for our Ph.D. program.** The Bridge Program would be a separate, terminal M.S. program. All applicants to the Ph.D. program will be evaluated by the Physics Graduate Studies Committee (GSC – admissions committee among other things) in the standard way.
 - **would not be a “backdoor” path to the Ph.D. program (see above).** There would be no obligation to accept Bridge students into the Ph.D. program. But applicants from the Bridge Program would be better known to the GSC (and would know us better), This would be a good thing in making informed Ph.D. admissions decisions.
 - **would not favor applicants from particular physics research areas.** Applicants from all research areas would be encouraged to apply.
- Described problem of low diversity in physics Ph.D. programs (made liberal use of slides available on APS Bridge Program website, including slides from the UM and Vanderbilt-Fisk programs).

Faculty Meeting (continued)

- Provided evidence that bridge programs can be successful (data from UCSF Bridge Program “Farm System,” anecdotal evidence from Fisk-Vanderbilt, UM).
- Other universities are forming bridge programs (Fisk-Vanderbilt, UM, MIT, Columbia), we should be an early entrant.
- Would help with faculty proposals for “Broader Impacts”!
- Described financing (lot’s of matching from College of Arts and Sciences, The Physics Dept., OSU’s MRSEC, and hopefully from APS, and maybe from the OSU Graduate School in the form of matching Tuition Awards).

Message: substantial resources will come into the Department.

After the vote:

- Faculty started thinking about Outreach and Engagement – “Hey, can I talk about participating with that Bridge Program in my NSF proposal?”
- Administration officials around the university wanted to be connected to Bridge Program, and started to cite their support as evidence of their achievements and commitment to increasing diversity.

Summary – Main Points

- (1) Important to form a core group of faculty and staff committed to establishing a bridge program.
- (2) Make sure colleagues know what a Bridge Program is, and what it is not:
 - helps to get students ready for a Ph.D. program - not a lowering of admissions standards into a Ph.D. program.
 - will not favor particular research groups or areas.
 - can help PIs' "Broader Impacts" in proposals; enable new funding focused on education/training/outreach (?)
- (3) Use data from prior BPs to show that they can work! Point out that existing BPs and the APS-BP can provide help.
- (4) Administration: try to tap into existing commitment to increase diversity by pointing out how Bridge Programs are different from other programs (e.g. minority fellowships, recruiting events); and provide evidence that BPs work.