

## Cal-Bridge: a CSU-UC PhD Bridge Program to Increase Diversity in STEM

The Cal-Bridge program has the mission of creating opportunities for traditionally underrepresented groups to participate and advance in physics and astronomy, and to increase their numbers in PhD programs in those fields.

The National Academy of Sciences 2010 Decadal Survey of Astronomy, “New Worlds, New Horizons in Astronomy and Astrophysics,” notes that, while Black, Hispanic, and Native Americans constitute 30% of the U.S. population, they account for less than 4% of physics and astronomy PhDs awarded in the United States and only 3% of faculty members. One of the top strategies recommended to overcome this underrepresentation is “Partnerships of community colleges and minority-serving institutions with research universities and with national centers and laboratories.” CAMPARE and Cal-Bridge are two such programs. The President’s Council of Advisors on Science and Technology (PCAST), in their February 2012 report state, “Federal agencies should encourage projects that establish collaborations between research universities and community colleges or other institutions that do not have research programs,” suggesting that programs like Cal-Bridge are a national priority in STEM education.

Cal-Bridge is a partnership between 9 University of California (UC), 15 California State University (CSU), and over 30 community college campuses in California, with over 140 physics and astronomy faculty from the two systems participating. Scholars are recruited from the 15 CSU and over 30 community college campuses in our network, with the help of local faculty and/or staff liaisons at each campus. Community College students transfer to a participating CSU to join the program. Additional community colleges are joining the network as we find faculty and/or staff at those campuses to act as liaisons.

The program uses research-validated selection methods to identify “diamonds-in-the-rough”, students from underrepresented groups who display strong non-cognitive abilities, along with academic potential, and provides them with the support necessary to successfully matriculate to a PhD program, targeted at the UC campuses in the Cal-Bridge network. Once selected, Cal-Bridge Scholars benefit from financial support, intensive, joint mentoring by CSU and UC faculty, professional development workshops, and exposure to a wide variety of research opportunities, including at the participating UC campuses.

In four years, 34 scholars in 4 cohorts have participated in Cal-Bridge, including 22 Hispanic, 3 African-American and 13 women students (10 of the 13 women are from underrepresented minority groups). Thirty (30) of the 34 Cal-Bridge Scholars are first-generation college students. In the last three years, 18 of 20 Cal-Bridge Scholars have begun or will be attending PhD programs in physics or astronomy at top PhD programs nationally, including UC Irvine, UC Santa Barbara, UC Merced, Univ. of Arizona, Georgia State Univ., Harvard, Northwestern Univ., Univ. of Maryland, Michigan State Univ., and Penn. State Univ., Univ. of Wyoming. Five (5) of these 20 scholars have won NSF Graduate Research Fellowships and three more received an Honorable Mention.