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FOR IMMEDIATE RELEASE

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## *Cal Poly Receives National Award for Efforts to Increase Number of Physics Teachers in U.S. High Schools*

SAN LUIS OBISPO — Cal Poly is among 11 universities in the nation honored for helping to reduce the critical shortage of physics teachers in U.S. high schools.

The Physics Teacher Education Coalition's 5+ Club awards recognized the university and other institutions that had at least five physics teacher graduates in the 2013-14 academic year. Cal Poly had five grads — the largest in the school's history.

The inaugural awards were presented at PhysTEC's 2015 conference in Seattle in February.

"Fewer than 20 institutions in the United States graduate five or more highly qualified physics teachers in most years," Malcolm Beasley, the 2014 president of the American Physical Society, and Steve Iona, last year's president of the American Association of Physics Teachers, wrote in a letter to Cal Poly

Most schools do not produce any physics teachers with degrees or minors in the discipline, said Chance Hoellwarth, a Cal Poly physics professor and co-director of the university's Center for Excellence in STEM Education, which fosters the preparation of teachers in the fields of science, technology, engineering and mathematics.

"Cal Poly typically produces two to three a year, which puts us way above average," he said. "Five is putting the university into a really elite number of schools."

Cal Poly is among 300 schools — representing 40 percent of all physics degree-granting institutions in the U.S. — that have joined PhysTEC, the coalition dedicated to improving and promoting physics teacher education. The university has been involved for more than 10 years.

Other schools honored this month were Brigham Young University, the University of Minnesota and Rutgers University.

PhysTEC is a joint project of the American Physical Society, one of the largest organizations of physicists in the world, and the American Association of Physics Teachers, a group of more than 10,000 educators in more than 30 countries.

Hoellwarth said the Center for Excellence in STEM Education is working to increase the number of science teachers.

Cal Poly annually issues single-subject teaching credentials, which are needed to teach at the secondary level, to about 50 credential students in a variety of disciplines. More than half of these are for math and the sciences, which includes chemistry, biology and physics. Of all teacher candidates here, less than 6 percent have a background in physics.

"We graduate 30 to 35 people a year in physics — which is high for any university physics department," Hoellwarth said. "But we still have to work to get them to consider teaching as a career option."

To bolster those efforts, the university created a Teacher in Residence Program more

than a decade ago to bring high school physics educators to campus to help train student teachers. In addition, the Center for Excellence in STEM Education has a number of programs and incentives to help students consider teaching over careers in industry.

"They can teach science to visiting fifth- through eighth-graders in our Learn by Doing Lab," Hoellwarth said. "'Students can earn money while teaching science and math lessons in a local after-school program as a participant in Mentors in Out-of-School Time. They also can be paid to tutor in local science and math classrooms as part of the Teacher Assistants in Mathematics and Science program."

The need for trained teachers, with a passion for the subject, comes at a time when more high school students are taking physics courses.

In 2013, the National Task Force on Teacher Education reported that "the need for qualified physics teachers is greater now than at any previous time in U.S. history." Of some 1,400 new teachers hired to teach physics annually, only one in three has a degree in physics or physics education.

Physics is a prerequisite for nearly all careers in engineering, chemistry, biology, environmental and earth sciences, and the medical and veterinary sciences. Moreover, educators say that physics, more than any other subject, teaches high school students quantitative and analytical reasoning skills.

"If you talk to engineering students and ask why they chose engineering, a large fraction would point to a high school physics course," Hoellwarth said. "Physics in high school is a ticket to many technical fields. A teacher who has a passion for physics can make a difference."

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