

CSULB Held Physics Teacher Open House Oct. 16 as Part of New Grant to Increase Physics Teachers



Akachukwu Igu has been a physics teacher at Compton High School for eleven years. He brought his students to the first CSULB PhysTEC Open House, and over brunch he shared a bit about his passion and respect for physics. He said, “Physics is everywhere. It’s everywhere - like even in why you can hear what I’m saying. This is the physics of vibrations. Physics is everywhere.”

California State University, Long Beach (CSULB) recently received funding from the National Physics Teacher Education Coalition (PhysTEC) to increase the number of highly-qualified students earning secondary school teaching credentials in physics. CSULB was one of only six universities in the entire country selected to be a new PhysTEC site. In fact, CSULB already prepares 6% of the total number of secondary science teachers in California.

A continuous recruiting effort will be the most important activity of the CSULB PhysTEC project. By recruiting students into the profession of teaching physics at the high school level, the CSULB PhysTEC project is addressing the national dilemma that only a third of our high school physics teachers have a major in physics or physics education. By recognizing this deficiency and employing effective methods to produce more highly-qualified instructors, the CSULB PhysTEC project is taking steps that will very likely succeed at addressing this problem.

The methods used by the CSULB PhysTEC project include hosting a biannual open house for high school physics teachers and their students. The first of such open houses was held recently, on October 16th. This event was a success with several high school teachers bringing their students to the CSULB campus from as far away as Bakersfield and from as close as Compton. In fact, three of the teachers there were former physics undergraduate students at CSULB: Heather Stirewalt, Miguel Maldonado and Thomas Zook. Other attendees earned their physics

teaching credential with CSULB. Almost all brought their own high school physics students to the open house, an obvious marker of the project's early success.

"Physics is the core of science and [students] need to learn it to better understand the other sciences," commented David Rave, a CSULB physics undergraduate student also in attendance. David said he likes the teaching process and is considering teaching physics in high school as well. Further, he thinks the CSULB PhysTEC project will succeed because it delivers physics knowledge to kids early-on and gives them an insight into the college environment.

One high school student, sixteen year-old Amy Bosworth from Bakersfield's North High School, was glad to be there for exactly the reasons David mentioned. She said, "Coming to this event was a pretty cool way to get an idea of what [physics] would be like. It was kind of like an insight into it. It helped me. When I choose what I want to do, I can remember this." Amy wants to be a scientist and though she was thinking about going into forensics, she is now interested in seeing how physics relates to forensics and exploring that path further. She admitted, "I never thought I could be interested in physics, but this event was informative, very informative, and I enjoyed it."

Attendees at the open house were introduced to the research interests of two of CSULB's physics professors, Dr. Chuhee Kwon and Dr. Galen Pickett, who focus on condensed matter physics and self-folding membranes respectively. The students were then treated to brunch at the faculty restaurant on campus followed by a guided tour through laboratories of six different faculty members. Dr. Kwon's tour impressed the students because her laboratory houses a \$200,000 atomic force microscope which can "see" things one-millionth of the diameter of a piece of hair. (Watching students strain to imagine something so small was priceless.) To finish the event, the group was shown an experiment that they could use with their own students in the future, should they choose to teach high school physics. The experiment cleverly involved paperclips, ice water, air, blow torches, and the laws of thermodynamics. Through this simple experiment, everyone got to experience the hands-on nature of physics while having fun.

Students formally admitted into the PhysTEC program at CSULB will be identified as "PhysTEC Scholars" and will enjoy several benefits. For instance, the PhysTEC Scholars will be eligible for other opportunities within the physics community including NSF-Noyce Scholarships, paid internships at national labs such as NASA, the chance to teach at summer science camp, and the clearance to attend professional meetings such as those of the American Association of Physics Teachers (AAPT) and the California Science Teachers Association (CSTA).

A new physics teaching methodology course will be offered in Spring 2011 to PhysTEC Scholars and physics teachers as a part of CSULB PhysTEC project. They will be introduced to common misconceptions in physics as well as research-based interactive approaches to teaching. Some aspects include collaboratively developing lesson plans, labs, demonstrations and assessments related to individual topics commonly taught at the high school level.

PhysTEC was created by the American Physics Society (APS) and the American Association of Physics Teachers (AAPT), and it's clear that their appreciation for the importance of teaching cannot be overstated. Teacher-In-Residence Rod Ziolkowski, a part of the CSULB PhysTEC leadership team, was heartfelt in his praise for the teaching profession, as we all should be, and he expressed its importance clearly by saying, "It's a wonderful job and a wonderful life... It's rare to find a job where you can make a difference in a person's life, and teaching is one of those jobs." Thanks to these teachers and collaborators, we can all look forward to watching the CSULB PhysTEC project make a difference in our local community and in multitudes of students' lives.

The next open house will be April 9th, 2011. To learn more about the CSULB PhysTEC project, visit the project website www.physicsatthebeach.com.

