



Brian Stahl

## FIRST BONDERSON FELLOW NAMED FOR CAL POLY- UCSB GRADUATE PROGRAM

BRIAN STAHL IS POISED to be a pioneer. Not only is the Cal Poly materials engineering graduate student aiming to undertake new research in the fields of biomaterials/biocompatibility and electronic and photonic materials, he is also forging a unique collaboration between Cal Poly and UC Santa Barbara.

Stahl was recently named the first recipient of a Bonderson Fellowship, which provides recipients with five years of tuition and support to pursue a master's degree at Cal Poly and a Ph.D. at UCSB. The fellowship program, established with a \$500,000 gift from Paul and Sandra Bonderson, also earmarks funds for equipment and lab costs, support for faculty, and greater collaboration between researchers at the two universities.

Involved in past high-tech projects, Stahl has a research focus that is still being defined. His interest in biomaterials and biocompatibility was sparked by an internship at Boston Scientific, a medical device manufacturer specializing in devices that are less invasive. "I was amazed by the complexity of the human body and how these devices could be used to treat a disease that several decades ago required open-heart surgery," Stahl said.

At Cal Poly, Stahl has been working on the micro-fabrication of a silicon-based pressure sensor, a project with the Micro Systems Technology research group. Led by materials engineering Professor Richard Savage, this effort involves students from materials engineering, biomedical engineering, electrical engineering, and mechanical engineering working on projects with micro- and nano-scale technologies. □

## STUDENTS DOMINATE NATIONAL AIRCRAFT DESIGN COMPETITION

CAL POLY AEROSPACE ENGINEERING students upheld a long-standing tradition of victory by taking two first-place wins and sweeping the Undergraduate Team Aircraft Design category at the recent American Institute of Aeronautics and Astronautics Student Design Competitions.

Under the direction of instructor David Hall, now retired, Cal Poly's UGTA design team, Arete Aeronautics, and its inter-theater tactical transport "Amarok" surpassed their competition. Team Arete included Collin Baukol and Brian Saponas from San Luis Obispo, Ken Thomas from Lake Forrest, Abigail Liddle from Lafayette, Patrick Wellman from Arroyo Grande, and Derek Geiger from Sacramento.

In addition to the first-place win for Arete Aeronautics, Cal Poly teams Awsom-O and Sleipner Aerospace took second and third with their respective designs of "Sunstorm" and "Odin's Fury." The triple-medal showing marked the second time in three years that Cal Poly swept a design category in the competition.

Aerospace engineering Professor Mark H. Waters advised another Cal Poly team whose design, "The Mosquito," took top honors in the Undergraduate Team Engine Design category. The team included Baukol, Eric Hansen from Woodland Hills, Josh Caldwell from Oakley, Dan Gilani from Gold River, Cassy Anthony from Paso Robles, Nick Jenkins from Los Osos, Terence Statt from Union City and John Bernard from Dinuba.

The competitions are part of a wide-reaching program that recognizes excellence in aerospace engineering study. Each year, the AIAA competition marks the culmination of a three-quarter, senior-level aircraft design course in which students receive insight firsthand from industry professionals. □

## PRESIDENT BAKER TESTIFIES AT COMPETITIVENESS CRISIS COUNCIL SUMMIT



CALIFORNIA IS GOING TO EXPERIENCE a significant decline in per capita income in little more than a decade if no action is taken, President Warren J. Baker warned members of a U.S. House subcommittee at a September hearing.

Baker cited several prestigious reports that document a strong continuing demand for science and technology workers in the California and United States economies.

The statistics show that by 2020, California will experience a decline in per capita income of almost \$2,500 if rates of educational participation and completion are not increased.

In his testimony before the U.S. House Education and Labor Sub-Committee on Higher Education, Lifelong Learning and Competitiveness, Baker discussed the growing need for graduates in science, technology, engineering and mathematics (STEM) disciplines. He also shared information about steps Cal Poly is taking to address the need and commented on additional policy measures that might be implemented at the federal level to help at the state and local level.

The hearing was part of a two-day summit titled "California is at Great Risk – Securing Our Competitiveness in a Global Market," hosted by Cal Poly Pomona and the Competitiveness Crisis Council. It was led by Representatives Ruben Hinojosa (D-Texas) and Mazie Hirono (D-Hawaii).

For more information, visit [www.competecalifornia.com](http://www.competecalifornia.com). □

## MAJOR NASA RESEARCH INITIATIVES COME TO CAL POLY

TWO CAL POLY AEROSPACE ENGINEERING professors have been awarded separate million dollar contracts with NASA's Aeronautics Research Mission Directorate. David D. Marshall and Rob McDonald submitted the winning proposals for research related to NASA's umbrella plan to develop future-generation aircraft.

"The next two decades are ripe for an aviation renaissance," said McDonald. "Advanced multidisciplinary physics-based

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design and analysis capabilities are required to pursue the revolutionary vehicle and technology concepts needed to meet NASA's aggressive goals."

McDonald will develop an analysis and software system for designing future aircraft. He was awarded a three-year contract worth nearly \$1 million dollars to fund research efforts by four Cal Poly students. McDonald will also collaborate with Phoenix Integration, based in Wayne, Penn., and renowned independent software developer J.R. Gloudemans.

Marshall's research team will develop prediction methods and test hardware that can predict the performance of short-takeoff-and-landing aircraft.

Marshall anticipates funding at least five Cal Poly students and collaborating with several researchers, including Robert Englar of the Georgia Tech Research Institute. □

| (L-R) Rob McDonald and David Marshall |



## GRC ALUM IS NATION'S PRINTER



**ROBERT C. TAPELLA (GRC '91)** is now officially the nation's 25th Public Printer – following in the footsteps of the nation's first Public Printer: Benjamin Franklin.

Tapella, nominated to the post in May, was confirmed in October by the U.S. Senate. President George W. Bush has signed the commission.

Tapella will now lead more than 2,200 employees at the U.S. Government Printing Office. He comes to the GPO following several assignments on Capitol Hill. □

## RECREATION PROGRAM GOES INTERNATIONAL

Cal Poly recently became one of only five universities nationwide to offer a certificate program designed to foster the education of tourism professionals.

The prestigious University Consortium Field Certificate is now being offered at Cal Poly, after the university's Recreation, Parks, and Tourism Administration program joined The International Ecotourism Society.

The certificate program reflects both Cal Poly's commitment to sustainability and the recent worldwide emphasis on sustainable tourism, according to Jerusha Greenwood of the Recreation, Parks and Tourism Administration faculty.

Other universities participating in the University Consortium Field Certificate are North Carolina State University, Pennsylvania State University, University of Florida, and West Virginia University. □

## SWE WINS NATIONAL TEAM TECH COMPETITION

A DIVERSE GROUP of engineering students from Cal Poly's Society of Women Engineers took first place in the national Boeing Team Tech Competition.

SWE students submitted a winning design for a roller coaster weld-point-inspection device, using Walt Disney Imagineers as advisors and only half the team's allotted budget, earning the team a \$5,000 prize.

Leading the Team Tech efforts were co-directors Emily Hakun, a general engineering graduate student, and Amber Iraeta, a mechanical engineering senior. The team used the new Bonderson Projects Center to design the modular device, which moves along a roller coaster track to sense whether the welds were made smoothly.



After performing initial design tests on campus, the team was invited to Disneyland for actual on-track testing. Pat Doyle, industrial advisor to Team Tech and a Disney project engineer, was impressed with the Cal Poly team. "The students have treated this project just as I would have in my current role at Disney," he said. "Their knowledge and education is a clear advantage when coming up with new and innovative design solutions."

The 2007 SWE National Conference, held in Nashville, Tenn., marked another banner year for Cal Poly SWE. The group also received the prestigious Boeing Multicultural Award, took second place for best Collegiate Web site and took third place for Most Outstanding Large Collegiate Section. □

## CAMPUS LEGISLATIVE HEARING GIVES VOICE TO TEACHERS

TEACHERS ARE TIRED OF SELLING CANDY to buy supplies and nailing plywood to classroom walls for makeshift lab tables, state legislators were told during a hearing held on campus.

Sen. Tom Torlakson, chair of the Select Committee on Schools and Community, hosted the informational hearing along with Sen. Abel Maldonado and Assemblyman Sam Blakeslee on Oct. 30 in the Keck Laboratory.

Designed to give a voice to classroom teachers, higher education, and business and industry, the hearing focused on creating learning environments for student success.

Comments from invited panelists and the public were presented. They included the following suggestions and remarks:

**Mohammed Noori**, dean of the College of Engineering: “The importance of technology to our society is so enormous, and its potential to solve the grand societal challenges of our century so compelling, that student success in the 21st century implies two things. First, we must increase the numbers of students going into scientific and technical disciplines, and second, we must require more of our students. Students of all disciplines must become more proficient with science and technology.”

**Jane Peterson**, first grade teacher, Dana Elementary School: With hands-on projects about volcanoes and ladybugs, she motivates her pupils to become “totally committed to science and technology in the first grade.”

**Luke Laurie**, Science Department chair, El Camino Junior High, Santa Maria: His concerns include the fact that some students don’t study science until high school, and the “long and winding road” federal funding takes before reaching the classroom. He also believes standards-based instruction – or “drill and kill” – has harmed science education.

**Bill Kurnett**, science teacher, Del Oro High School: Rather than standards-based instruction, he recommends teaching students how to think and solve problems, because the world is changing so rapidly that no one can predict what “facts” students will need to know when they enter the work force.

**Bonnie Konopak**, dean of the College of Education: “Many science and math teachers in California lack subject-matter expertise for the areas they teach in and/or don’t even have a teaching credential. Cal Poly is promoting a ‘teacher-scholar’ model that encourages teachers to spend time working at a national laboratory as scientists.”

**Peter Murphy**, executive director, California League of Mid-



dle Schools: California needs a “seriously consistent funding approach that would ensure that every student has access to a high-quality education.” The current competitive funding environment creates a “football season year round.” He suggests asking the state’s major businesses for funding to help ensure that the high-tech work force pipeline is filled.

**Leroy Tripette**, education manager, Intel Corp.: “There is not really a science rally point any more – no Sputnik or moon shot. Maybe it’s clean, renewable energy. We should provide opportunities for students to showcase what they’re learning and doing.”

**James Boyle**, United Launch Alliance: “I was Principal for the Day at an elementary school. When aids came in with questions regarding finances, I asked them to explain how the school receives funding. There must have been 20-30 sources. Company and Air Force budgets aren’t that hard to manage.”

**Col. Carl Frushon**, Vandenberg AFB Launch Facility: “I remember watching, at age six or seven, Neil Armstrong landing on the moon. That was a huge motivator for me. Now I’m a rocket scientist.”

**Hank Lewis**, business manager, IBEW Local 639: “We’ve been training electrical contractors since 1942. Every year, we have fewer applicants passing the test. There is a 50 percent failure rate now, much higher than it was 10-15 years ago.”

**Sen. Torlakson**: “We need to find a way to tap into young people’s hopes and dreams, and we need to reprogram our existing funding before we ask the taxpayers for more. These hearings are helping us figure out how to do that. We want to understand the barriers and put together the best practices.”

**Sen. Maldonado**: “What we’re doing throughout the state is ‘learning by hearing.’ We keep putting more money into education, but are we getting the results we want? We need to focus more on math and science.”

**Assemblyman Blakeslee**: “We need to capture the curiosity of a child and fan that flame into a fire of discovery. We want to motivate them to be the first person to see something under a microscope, through a telescope, or on a computer screen.” □