President Chameau Welcomes New Students to Caltech

Last month Caltech President Jean-Lou Chameau welcomed new students, their families and friends to the campus during the annual Convocation. Here are some excerpts of his remarks:

It is my pleasure and my honor to welcome you to the California Institute of Technology! Life is rarely about guarantees, but I’m about to make you one: I guarantee you that the years of study you’re about to embark upon will be both exciting and overwhelming, and sometimes both at once.

Our alumni sometimes liken a Caltech education to trying to sip water from a fire hose. Information, experiences, ideas, thoughts … they’re all going to come at you, fast and furious. Take in what you can, with your mind wide open.

For people who are used to being the smartest person in the room, Caltech can be a bit of a culture shock. But let me tell you something right now that might help: You don’t need to be the smartest person here. There’s room for lots of really smart, creative, curious people at Caltech, and you have demonstrated you’re one of those people. It’s why we asked you to come. In fact, let me take this time to tell you a little bit about yourselves and your fellow students. Out of the more than 5,000 applications we received for this freshman class, we admitted only 244 of you. Thirty-six percent of you are women; I’ll let you all do the math to figure out what percentage of you are men. And 16 percent of you, whether male or female, are underrepresented students. Seventy-seven percent of you did community service in high school which, I believe, says a lot about you; 36 percent of you participated in athletics. What about the graduate students? There are 259 new graduate students this year; there are 115 international students, representing 35 countries from Australia to Uruguay. Sixty percent of you are in engineering fields. As for the sciences? Chemistry has the most new graduate students with 44.

Whoever you are, whatever you do—you’re unique and we’re happy to have you here at Caltech. And now that you’re here, what we want you to do—what we need you to do—is to be curious. In a message I sent to campus, commemorating the ten-year anniversary of the tragic events of 9/11, I talked about remarks made by columnist Tom Friedman on the challenges facing this country. One of the things Friedman said was that the U.S. doesn’t just need more education … we need better education. As he put it, we need “education that focuses on creativity and starting things.”

He also talked about the importance of inventing ourselves out of the position we’re in now. And so here is my charge to you, as you begin your time at Caltech: Be creative. Start things. Help us invent our way out of where we are now. During your time here, we will give you the tools you need … but it’s up to you to use them, and we don’t just want you to use them—we need you to use them.

Welcome to Caltech.
Caltech Astronomer Nominated to National Science Board

President Barack Obama has nominated Anneila Sargent, vice president for student affairs and the Rosen Professor of Astronomy, to the National Science Board, the governing body of the National Science Foundation.

As an astronomer, Sargent studies disks of gas and dust that form stars and planets. She first arrived at Caltech as a graduate student. Since then, she has worked as a research fellow, a member of the professional staff, a senior research fellow, and a senior research associate, becoming a professor in 1998. Sargent has served as the director of the Owens Valley Radio Observatory and the Combined Array for Research in Millimeter-Wave Astronomy. She has also been president of the American Astronomical Society, chair of NASA’s Space Science Advisory Committee, and chair of the National Research Council’s Board of Physics and Astronomy.

The National Science Board consists of 25 members who serve six-year appointments. Eight members are nominated every two years and must be confirmed by the U.S. Senate. Previous members from Caltech include Barry Barish, the Linde Professor of Physics, Emeritus; the late Lee DuBridge, physicist, former Caltech president, and science advisor to Presidents Harry Truman and Richard Nixon; and the late William Fowler, astrophysicist and Nobel laureate.

Keep up on Caltech news on our Caltech Today website located at: http://today.caltech.edu/

The Great California Shakeout

During the morning of October 20, Caltech students, faculty and staff will join millions of people across the state by participating in the Great California Shakeout 2011. At 10:20 a.m. on that Thursday, everyone on campus will be encouraged to “Drop, Cover and Hold” as a way to increase earthquake preparedness among everyone at Caltech.

Throughout the day of the Shakeout, the campus will be staging full-scale emergency response and recovery drills as Caltech activates its Emergency Response Plan. Emergency exercises, like Shakeout, ultimately build a more disaster-resilient Institute, and the Caltech administration is proud to be participating in The Great California Shakeout for the fourth time since 2008.

Science: for Ages 8 and Up

Saturday, October 22, 2011, in Beckman Auditorium, the Science Saturday program features Planet Earth-Fresh Water. An engaging, in-depth look at the Earth's most valuable resource: fresh water. Watch spectacular waterfalls, fly through the Grand Canyon and explore wildlife in the world's deepest lake, discovering how fresh water has produced many of the Earth's wonders.

Joel Scheingross, a graduate student in geological and planetary sciences at Caltech, will introduce the film and guide the post-screening discussion.

$5 (unreserved seating)

WATSON LECTURE

Wednesday, October 12, 8:00 p.m. — Beckman Auditorium. Antonio Rangel, Caltech’s Professor of Economics and Neuroscience, will speak on “How does your brain make decisions?” Salad or steak? Work, family, or play? Stop or have another drink? All of those decisions are made by processes imbedded in our brains, often effectively, but sometimes in self-defeating ways. Neuroeconomics studies what are the computations made by the brain to make different types of decisions, how are those computations implemented by the brain, and what are the differences between the brains of good and bad decision makers. This talk will show you what we have learned about these questions at Caltech over the last few years. Admission is free.

For more information, please contact Caltech’s ticket office at 626-395-4652, or visit our website at events.caltech.edu
Caltech’s Jacqueline Barton to Receive 2011 National Medal of Science

Jacqueline K. Barton, the Arthur and Marian Hanisch Memorial Professor of Chemistry and chair of the Division of Chemistry and Chemical Engineering at Caltech—a leader in studies of the chemistry of DNA—has been named one of seven recipients of the 2011 National Medal of Science, the highest honor bestowed on scientists by the United States government.

Barton was cited by the White House for her "discovery of a new property of the DNA helix, long-range electron transfer, and for showing that electron transfer depends upon stacking of the base pairs and DNA dynamics. Her experiments reveal a strategy for how DNA repair proteins locate DNA lesions and demonstrate a biological role for DNA-mediated charge transfer."

"Each of these extraordinary scientists, engineers, and inventors is guided by a passion for innovation, fearlessness even as they explore the very frontiers of human knowledge, and a desire to make the world a better place," said President Barack Obama when announcing the awards. "Their ingenuity inspires us all to reach higher and try harder, no matter how difficult the challenges we face."

"The entire Caltech community is proud of Professor Barton," says Caltech president Jean-Lou Chameau, "and of this validation of what we’ve known for quite some time, which is that Professor Barton is an enormously talented scientist whose work and creativity have had a significant impact on our world and how we understand it."

The work has implications beyond the lab since mutations in the DNA repair machinery are associated with predispositions to diseases such as colon and breast cancer, as well as diseases associated with premature aging.

"That's one of the important things about basic research," Barton says, "you never know where it's going to take you. This chemistry may be critical to DNA-based signaling across the genome to activate cellular responses to DNA damage. We started with this curious little experiment looking at simple metal complexes that did electron transfer, and now we're talking about DNA damage that results from oxidative stress and how that leads to cancer."

Barton joined the Caltech faculty as a professor of chemistry in 1989 and was named the Arthur and Marian Hanisch Memorial Professor in 1997. Barton is the recipient of numerous awards, including the 1988 American Chemical Society Award in Pure Chemistry, the 1985 NSF Waterman Award, and a MacArthur Foundation Fellowship in 1991.

Barton was elected a fellow of the American Philosophical Society in 2000 and was elected to the National Academy of Sciences in 2002. She was appointed chair of the Division of Chemistry and Chemical Engineering at Caltech in 2009.

There have been 56 recipients of the medal, including Barton, who are alumni or faculty at Caltech. Barton is the first woman at Caltech to receive the National Medal of Science.

Olympic Gold Medalist Leads Caltech Athletics, Recreation and Physical Education

Betsy Mitchell was appointed director of athletics, recreation and physical education at Caltech in July. The former Olympic gold medalist and world record holder becomes Caltech’s first full-time female director of athletics and recreation.

Prior to this appointment, Mitchell served as the director of athletics and recreation at Allegheny College in Pennsylvania from 2006 through March 2011.

Mitchell was a competitive swimmer for more than 10 years, earning an Olympic silver medal as a high school athlete by placing second in the 100-meter backstroke, and also winning a gold medal as a member of the 400-meter medley relay in the 1984 Olympics in Los Angeles. She earned another Olympic medal after helping the 400-meter medley relay team to a silver medal at the 1988 Olympics in Seoul, South Korea. In between Olympic berths, she set the world record in the 200-meter backstroke at the 1986 World Championships. That record stood for five years.

REFORM ADVANCES TECH TRANSFER

Caltech recognized the enactment of the Leahy-Smith America Invents Act last month as a vital step in advancing our nation’s commitment to innovation and the transfer of university discoveries to the marketplace. Caltech annually averages 120 to 140 patents granted and 180 invention disclosures from approximately 300 faculty members. In addition to having the highest disclosures per faculty in the nation, the Institute consistently ranks among the top three in the average number of patents granted to universities. Caltech also averages eight start-up companies per year.

In April, Caltech President Jean-Lou Chameau, along with more than 130 university and association leaders, signed a letter to then-Secretary of Commerce Gary Locke expressing Caltech's intention to develop and enhance campus-based activities relating to entrepreneurship, technology commercialization, and economic development.

As part of its ongoing commitment, Caltech has embarked on a number of programs through its Office of Technology Transfer, including the Caltech Innovation Initiative (C12): The C12 is an internal grant program designed to provide research funds to high-risk but potentially high-reward projects that could produce disruptive technologies with practical applications in the marketplace.
Progress Reported for Two Major Reconstruction Projects on Campus:

**Linde + Robinson Laboratory** – The existing Robinson Laboratory, a 45,000 gross square feet building, is being completely renewed to house The Ronald and Maxine Linde Center for Global Environmental Science. This Center was founded to address the complex issue of global climate change from a wide range of disciplines. The Center unites faculty from chemistry, engineering, geology, environmental science, and other fields. Many of the faculty members associated with the center teach and research in Caltech's Environmental Science and Engineering Department—a multidivisional program of graduate and undergraduate study. The building has been brought up to current design standards, including renewing all interior spaces, mechanical, electrical, and plumbing systems. The building is a beautiful historic specimen from the original campus, and the upper two floors are being completely restored to their original Bertram Goodhue design. When complete this year, the laboratory will be the most sustainable laboratory ever created in a historic building. The building will achieve LEED Platinum certification—the first ever for an existing laboratory in the nation.

**Jorgensen Laboratory** – Renovation and expansion of the Jorgensen Laboratory, a 32,000 gross square feet building, is ongoing and will prepare the building to serve as the focal point for clean energy research on the Caltech campus. The renewed Jorgensen Laboratory will house the south site of the DOE’s Energy Innovation Hub in fuels from sunlight known as the Joint Center for Artificial Photosynthesis (JCAP) and also house the Resnick Institute for Energy, Science, and Sustainability. JCAP will focus on the scientific and technological barriers to the development of a scalable technology based on artificial photosynthesis to meet the challenge of producing carbon neutral fuels directly from sunlight. The Resnick Institute will focus on fostering transformational advances in energy science and technology through research, education and communication. The Resnick Institute strives to identify and address the most important outstanding challenges and issues in the generation, storage, transmission, conversion and conservation of energy. Housing both groups in one space will greatly increase collaboration and interaction in the energy arena. Construction will begin in May 2011 and complete by the end of May 2012. The project includes a complete revamping of the laboratory interior to meet its new needs including wet labs, dry labs and collaboration/interaction spaces. The project will achieve LEED Gold certification, as have all Caltech buildings constructed in this century.