

## Transformational Impact: Resnick Sustainability Institute Enters Second Phase

Over the past five years, the Resnick Sustainability Institute has focused on establishing its headquarters in the Earle M. Jorgensen Laboratory. Its first phase of programmatic activity included graduate fellowships, development of corporate and academic partnerships, the fielding of solar decathlon student teams who built zero-net-energy solar-powered homes, and the orchestration of a national Cleantech business plan competition. These programs have supported fundamental advances in science and engineering at Caltech, which can have transformational impacts on energy, science, and technology—sometimes in unexpected ways. Harry A. Atwater, Howard Hughes Professor of Applied Physics and Materials Science and Director of the Resnick Sustainability Institute, puts it this way: "Very often the key critical factors, the tipping points so to speak, that determine whether or not any given technology or initiative has a transformational impact are socio-political and sociological, rather than purely technical."



It is with this vision and a new \$15 million gift from Lynda and Stewart Resnick that the institute has entered its second phase. The programs and activities of this phase are focused on a global search for people who will have or are already having an impact, with the goal of advancing research aimed at helping humanity sustainably meet its needs for energy, food, clean water, and a healthy environment. Professor Atwater explains, "The toughest issues in sustainability are not short-term; they require a 50-year view and need to be approached with creativity and a transformative perspective. We are looking outwards to have an impact and a presence in the global context of sustainability and energy science." Specifically, they have established a prize postdoctoral fellowship and the Resonate Awards, designed to honor breakthrough achievements of outstanding innovators in the area of energy science and sustainability around the world.

To learn more, visit [resnick.caltech.edu](http://resnick.caltech.edu).



Ares Rosakis and Koppillil Radhakrishnan

## International Space Leadership

The Engineering and Applied Science Division and Caltech have been instrumental in the training of many international space leaders, including Satish Dhawan (PhD '51), who was pivotal in the creation of the Indian space program and Tsien Hsue-Shen (PhD '39), the father of Chinese rocketry. Continuing in this tradition, the Director of the Jet Propulsion Laboratory (JPL), Charles Elachi, and the Chair of Caltech's EAS Division, Ares Rosakis, recently hosted the Chairman of the Indian Space Research Organization (ISRO), Dr. Koppillil Radhakrishnan, who was also Satish Dhawan's last student. The visit focused on plans regarding a joined Earth-orbiting mission that will be the first radar mission to systematically and globally study the solid Earth, the ice masses, and ecosystems, all of which are sparsely sampled at present.

Visit [eas.caltech.edu/news/653](http://eas.caltech.edu/news/653).



## Celebrating 20 Years: Control and Dynamical Systems at Caltech

The Control and Dynamical Systems (CDS) program at Caltech celebrated its 20th anniversary with a workshop in August 2014. The workshop brought together over 150 former students, visitors, colleagues, and friends of the CDS option, including a large fraction of the 120 PhD students and 60 postdocs who have been affiliated with the program since its inception. The workshop provided participants with a 20-year retrospective on areas of research relevant to CDS. Following the retrospective, the next sessions were devoted to the interaction of the research theme with external communities. Sample application areas that were covered included aerospace and transportation, biology and medicine, communications and networking, economics and finance, energy and infrastructure, materials and processing, and robotics and intelligent machines. The workshop ended with a look forward to the next 20 years, with speakers asked to make predictions about what the world will look like and what advances will have happened to make that future possible.

To view the presentations, visit [cds20.caltech.edu/program.html](http://cds20.caltech.edu/program.html).

## Making the Computer Era Possible

Carver Mead, Gordon and Betty Moore Professor of Engineering and Applied Science, Emeritus, is best known for his pioneering work on VLSI (very-large-scale integration) circuit technology in the 1970s and 1980s, which made it possible to greatly increase the number of transistors placed on a single semiconductor chip. It is no exaggeration to say that the computer era we live in would not have been possible without VLSI technology. To celebrate Carver Mead's 80th birthday and accomplishments, a number of events were organized by Caltech this year, including an evening co-hosted by EAS Division Chair Ares Rosakis and Caltech Trustee Milton Chang (PhD '69), along with his wife Rosalind Chang.

Students and colleagues are encouraged to share their memories of Carver Mead through the interactive website [carvermead.caltech.edu](http://carvermead.caltech.edu).

