

MESSAGE FROM THE CHAIR

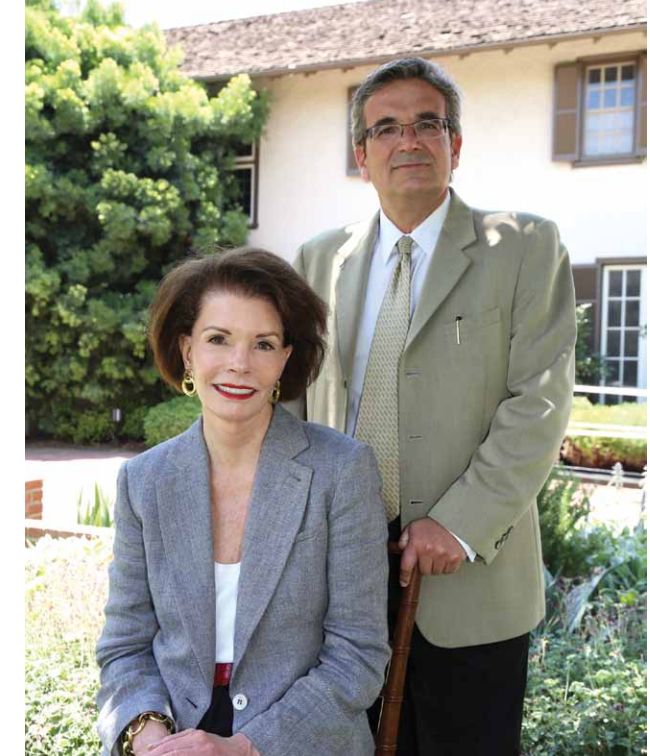
As Chair of the Division of Engineering and Applied Science (EAS), what gives me the most pride is the quality of our faculty and students and the standards that Caltech has always managed to keep in a world full of continuous compromises and scientific buzz words. We do not need large numbers of faculty and students to stand out among our peers, contribute, and make a great impact—we need only quality. In fact, our insistence on remaining small ensures that we continue to hire the best faculty and educate the most talented students.

One of our greatest accomplishments over the past year has been the formation of the Medical Engineering Department. This was in response to the desire of many of our faculty and of local research hospitals and medical foundations to jointly engage in engineering-centric technology development efforts for medical applications. We highlight the visionary research of the Caltech faculty who have come together to form this new department in the feature article in this issue of *ENGenious*.

Over the past four years, the faculty and I have implemented the first large-scale structural reorganization of the Division since its formation more than 100 years ago. The purpose of this reorganization was to further enhance the Division's effectiveness in teaching, research, faculty recruitment, and fundraising. The new culture of fundraising that we have introduced has involved the creation of a system of multiple fundraising councils, composed of Caltech alumni, Institute trustees, and industrial and community leaders. Since 2009 we have raised over \$140 million, including funds for 20 endowed graduate fellowships and seven endowed professorships.

One example of the transformational power of this new culture of fundraising is the creation of the endowed Otis Booth Leadership Chair for the Division, made possible by a \$10 million gift from the Otis Booth Foundation. Franklin Otis Booth Jr., the late husband of Foundation President Lynn Booth, established the foundation in 1967. Booth became an investor, newspaper executive, rancher, and philanthropist after graduating from Caltech in 1944 with a BS degree in electrical engineering. This endowment will support time-sensitive research that is too high-risk for most traditional grants and teaching innovations—including future online courses co-taught by EAS faculty and JPL scientists—as well as providing increased funding for faculty recruitment and cutting-edge research equipment. Another example of the opportunities created by this culture is the establishment of the Caltech Resonate Awards to honor breakthrough achievement in energy science and sustainability. This was made possible by a generous gift from Stewart and Lynda Resnick.

In looking forward to the new academic year, one of my priorities is to explore international collaborations that are especially appropriate for the size and concentrated excellence of Caltech. For instance, last year the Indian



Lynn Booth (seated) and Ares J. Rosakis

Department of Space and the Indian Space Research Organization (ISRO) established a graduate fellowship at Caltech in the name of Caltech alumnus Satish Dhawan (Eng '49, PhD '51), who is a pioneer of India's space program. This gift honors Dhawan and recognizes the historical connections between engineers and scientists in the United States and India. Another international opportunity we created last year was the Vest Scholarship, named after my friend and colleague Charles M. Vest and intended to bring high-powered international graduate students to Caltech for one year to work with Caltech faculty on grand challenges for engineering identified by the National Academy of Engineering (NAE).

Finally, the Earle M. Jorgensen Laboratory, which was featured in last year's *ENGenious*, has received LEED platinum certification in addition to architectural awards from the American Institute of Architects, the Westside Urban Forum, and the Los Angeles Business Council. We are also excited to be nearing the start of the renovation of the Thomas Laboratory—I encourage you to view some of the architectural renderings for this project on the inside back cover.

Yours proudly,

Ares J. Rosakis
Otis Booth Leadership Chair, Division of Engineering and Applied Science; Theodore von Kármán Professor of Aeronautics and Mechanical Engineering

This image, from the study of self-excited oscillations from fluid-structure interactions, shows the pressure within a device undergoing fluid-structure interactions for many different experimental conditions. The height of the plot is indicated by the magnitude of the pressure with time moving from left to right. The different lines going from front to back are for different experimental conditions and are sorted by the oscillation frequency. This yields an interesting visual where the data show periodic mounds of pressure in time.

ENGenious

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