

ALUMNI IMPACT

Caltech alumni make their mark after leaving the Institute, building upon what they've learned here, building the foundations for new fields of research, even building rockets!



Laurie Leshin



David W. Thompson



Lily Y. Jan and Yuh Nung Jan



Sean Solomon



Richard Scheller

FINDING SPACE

Laurie Leshin

PhD Geochemistry 1995

Laurie Leshin is on a hunt for water. As a cosmochemist, she has spent most of her career searching for wet stuff all over the solar system. She has worked on projects ranging from the recently launched Mars Science Laboratory rover to using meteorites from Mars to assess the potential for life and the history of water on the red planet and elsewhere. The International Astronomical Union recognized her contributions to planetary science with the naming of asteroid 4922 Leshin. Leshin is currently the dean of the School of Science at Rensselaer Polytechnic Institute.

MERCURY RISING

Sean Solomon

BS Geology 1966

Sean Solomon's work has helped shape the understanding of planets far and wide. He is currently the principal investigator on MESSENGER, NASA's mission to Mercury, which has been collecting data since April 2011. The first spacecraft to orbit Mercury, MESSENGER has already survived more than 500 orbits and is sending back tens of thousands of detailed pictures and other information that will help us better understand what the planet is made of, how it evolved, and how its core works. Solomon's research has also explained the resurfacing processes that occur on places like the moon and Mars, which have only one tectonic plate. Solomon is the director of the Department of Terrestrial Magnetism at the Carnegie Institution of Washington, in Washington, DC.

SEEING POSSIBILITIES IN SLUG BRAINS

Richard Scheller

PhD Chemistry 1980

As a newly minted Caltech PhD, Richard Scheller did a postdoc in the Columbia University lab of Nobel Prize-winning neuroscientist Eric Kandel, where they were studying the brains of sea slugs. While looking at slug brains with a microscope, Scheller identified a class of large, white nerve cells whose function was unknown. He proved that these cells supply the chemicals that regulate the slug's egg-laying process—performing one of the earliest experiments to show how a brain can control specific bodily functions. He has since helped decode the genes that control the functioning of vesicles, tiny fluid-filled pockets that release chemicals into the synapses between neurons. In particular, Scheller and a colleague have found that a protein that senses calcium

acts as a switch for turning these neurotransmitters on and off. Now executive vice president, Genentech Research and Early Development, Scheller brings his creative perspective to the search for new drugs.

CHANNELING POTASSIUM

Lily Y. Jan

MS Physics 1970

PhD Biophysics 1974

Yuh Nung Jan

MS Physics 1970

PhD Biophysics 1975

Lily Jan spent two years studying physics with George Zweig (PhD '64) before switching to biology, a move that would set her up for the rest of her career. She ended up getting a lot from Caltech: a master's degree, a doctorate, and a husband, Yuh Nung Jan, whom she met as a graduate student. The Jans have shared a laboratory since 1979. In 1987, they were the first to determine the DNA sequence of a potassium channel in fruit flies. This discovery laid the groundwork for studies by the Jans and others showing that potassium-channel mutations in fruit flies cause the same health problems—epilepsy, deafness, hypertension, arrhythmia—as similar mutations in higher organisms, including humans. The Jans work at UC San Francisco, where they continue to study how potassium channels regulate neuron signaling in the brain.

MAKING SPACE

David W. Thompson

MS Aeronautics 1978

David Thompson always had an eye on exploring space. As a graduate student at Caltech, he worked on the first Mars landing missions at the Jet Propulsion Laboratory. In 1982, he cofounded Orbital Sciences Corporation. During his three decades at the company, Orbital has created new classes of rockets and satellites that have helped make space applications more affordable and accessible to people and enterprises around the world. One of the leaders of the American space industry, Orbital makes everything from satellites and launch vehicles to human-rated space systems and missile-defense systems. Thompson continues to serve the company as chairman and chief executive officer, a position he has held since Orbital's inception.