

COMMITTEE ON FACULTY RESEARCH LECTURE
Annual Report 2012-2013

To: Academic Senate, Santa Cruz Division

The Committee on the Faculty Research Lecture is pleased to recommend Howard Haber, Professor of Physics, and Abraham Seiden, Professor of Physics, as joint Faculty Research Lecturers for the 2013-14 academic year. The joint presentation of the Faculty Research Lecture by two faculty members will be a first in the history of Santa Cruz. This is, however, a self-evident choice since the long sought search for the Higgs boson has recently been successful and the campus is blessed with two faculty members, one a theoretical physicist and the other an experimental physicist, who played major roles in this important discovery.

Howard Haber is a theoretical physicist of multiple and varied interests, skills and talents. He is best known for his work in the phenomenology of elementary particles. He was among the first to attack the problems of detecting the recently discovered Higgs particle. Studying the Higgs is quite challenging since it interacts very weakly with matter and so is hard to produce and to detect. With Jack Gunion and Sally Dawson, he co-authored the definitive text on the subject, *The Higgs Hunter's Guide*. He was also among the first to study the phenomenology of supersymmetry, a hypothetical symmetry of nature which has subsequently been extensively studied theoretically and searched for experimentally. Haber grew up in Brooklyn and was an undergraduate at MIT, a whiz kid among whiz kids. He went on to graduate studies at the University of Michigan. He took a postdoctoral fellowship at the Lawrence Berkeley Lab in 1978, and a subsequent position at the University of Pennsylvania. He came to UCSC in 1984. Early on he received a prestigious Department of Energy Outstanding Junior Investigator Grant. His work has had a large impact both on theorists and experimentalists. With regards to the Higgs boson, for example, he showed that in theories with supersymmetry, the Higgs boson could be much more massive than originally thought. This work drives a large fraction of the effort of the theoretical particle physics community at this time. Howie is a Fellow of the American Physical Society and was recently named a Humboldt Fellow. He is a member of the Particle Data Group, and on the Board of Trustees of the Aspen Center for Physics. He was recently a coordinator of the Rapid Response Program on the Higgs boson at the Kavli Institute for Theoretical Physics. He is an Editor of Theoretical Physics for the European Physical Journal C. His service includes many years as Director of the Physics Graduate Program, and Chair of the Senate Committee on Research.

Howard Haber is a true scholar, which is apparent both in his research and his teaching. He is always meticulous, thorough and careful, with a high level of integrity. Howie also loves baseball. Some of the physics students and faculty play softball in the UCSC intramural coed softball league. The team Howie plays on, called Re-Entry, is sponsored by the STARS organization on campus, which provides support and counseling for re-entry students to campus. Howie is a fearless shortstop and a reliable hitter.

Abraham Seiden is a leader in experimental high energy physics and has been involved in the construction of experiments at particle physics accelerator centers throughout the world. Before the cancellation of the Superconducting Super Collider in Texas, he led one of the most critical

tasks of the main detector. Upon the cancellation, he immediately took on a leading role in one of the two main detectors at the Large Hadron Collider. He has provided critical scientific ideas for these experiments, especially for the development of the tracking technology required for the very intense beams in the collider. He also put forth some of the critical ideas for the B-factory built at the Stanford Linear Accelerator Center. Seiden has been a leader in scientific policy as well. He has chaired the Scientific Policy Committee of the Stanford Linear Accelerator Center, the program committee for the Ligo gravity wave experiment, and chaired the Particle Physics Prioritization Panel, a panel which makes recommendations for future large scale projects in particle physics to the Department of Energy and the National Science Foundation.

Abe grew up in Brooklyn New York and Los Angeles. In high school, he won a statewide math competition. He attended Columbia, where he was Valedictorian in 1967. He then began his graduate studies at Cal Tech, but accompanied his thesis adviser to UCSC, where he obtained his Ph.D. in 1974, working on deep inelastic scattering. After a brief stint at the European Organization for Nuclear Research (CERN), he became a professor at UCSC in 1976. In 1981, he was named director of the Santa Cruz Institute for Particle Physics. Under his leadership, it became the scientific powerhouse it is today.

Abe is a Fellow of the American Physical Society, and received the Outstanding Faculty Award from the Division of Physical and Biological Sciences in 1995.

It is thus with both great respect and pleasure that we recommend to the Senate Dr. Howard Haber and Dr. Abraham Seiden to jointly deliver the Faculty Research Lecturer for 2013-14.

Respectfully submitted,

COMMITTEE ON FACULTY RESEARCH LECTURE

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