Steven G. Louie receives 2015 Materials Theory Award

The Materials Research Society (MRS) has named Steven G. Louie of the University of California–Berkeley, as the recipient for the 2015 Materials Theory Award "for his seminal contributions to the development of *ab initio* methods for and the elucidation of many-electron effects in electronic excitations and optical properties of solids and nanostructures." Louie will be recognized at the 2015 MRS Fall Meeting in Boston. The Materials Theory Award, endowed by Toh-Ming Lu and Gwo-Ching Wang, "recognizes exceptional advances made by materials theory to the fundamental understanding of the structure and behavior of materials."

Louie has advanced the frontiers of multiple fields across materials research by developing new concepts, pioneering critical theoretical and computational methods, predicting new properties and materials, providing insights to novel phenomena, and fostering interactions between theory and experiment.

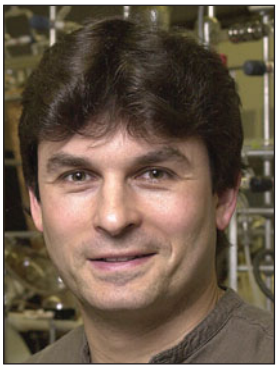
He developed central theoretical ideas and also invested effort to implement and code them into computational software packages, which are now in widespread use, and are essential in explaining as well as predicting the behavior of broad classes of real materials. He applied these methods to a wide variety of important examples, coming up with bold predictions that were later confirmed experimentally, and powerful insights that advanced understanding of the fundamental behaviors of novel and complex solids and nanostructures, enabling exploration of new directions and applications.

Louie is the founder and acknowledged leader of the field of first-principles study of excited-state properties of materials. In 1985, he with student Hybertsen developed a method (based on the GW approximation of many-body theory) that allowed computation of electron excitation (quasiparticle) energies in real materials, including many-electron effects *ab initio* (i.e., without adjustable parameters or empirical input). This breakthrough solved a central problem (the bandgap problem) in electronic structure theory and created a field with a worldwide following, complementing that of density functional theory (DFT) for ground-state properties. In 1998, he with postdoc Rohlfing included electron–hole interactions to his approach, allowing the first *ab initio* calculation of optical properties and phenomena such as photo-induced structural changes.

In addition to these seminal contributions, Louie continues to make important fundamental contributions to many systems of condensed matter and nanoscience with the *ab initio* techniques he pioneered.

Among his many honors, Louie is an elected member of the National Academy of Sciences (2005), the American Academy of Arts & Sciences (2009), and an academician of the Academia Sinica of Taiwan (2008). He is also a Fellow of the American Physical Society (1985), the American Association for the Advancement of Science (2006), and an inaugural Simons Foundation Fellow in Theoretical Physics (2012).

Louie is identified by the ISI Web of Science as one of the most highly cited researchers in physics and nanoscience, with over 50,000 citations. He has trained generations of outstanding students and postdoctoral researchers. Many of them are now leading scientists in Europe, America, and Asia.



Richard B. Kaner selected as MRS Medalist for synthesizing methods

Richard B. Kaner, Department of Chemistry, University of California–Los Angeles, has received the 2015 Materials Research Society (MRS) Medal. He is cited "for the discovery of efficient methods to synthesize water dispersible conducting polymer nanofibers and their applications in sensors, actuators, molecular memory devices, catalysis, and the novel process of flash welding." Kaner will be recognized during the award ceremony at the 2015 MRS Fall Meeting in Boston.

Kaner's most important breakthrough came just 10 years ago while he was trying to develop a method to create high-surface-area polyaniline for use in sensors. He and his students developed an interfacial polymerization technique analogous to that used to produce nylon. However, while in the nylon reaction, the

https://doi.org/10.1557/mrs.2015.247 Published online by Cambridge University Press