

On January 9<sup>th</sup>, 2012, Israel's Minister of Education and Wolf Foundation Chairman Mr. Gideon Sa'ar announced this year's recipients of the 2012 Wolf Prizes in the sciences and arts. Charles Lieber of Harvard University received the Wolf Prize in Chemistry; he shares this honor with A. Paul Alivisatos of the University of California, Berkeley. Lieber is honored for seminal contributions to the rational growth, characterization, and original applications of a broad range of nanowires and heterostructures. His pioneering contributions have provided a comprehensive tool box for the systematic growth and characterization of materials, heterostructures and devices, with both demonstrated and potential for profound contributions to areas ranging from computing, communications, optoelectronics and energy sciences to biology and medicine.

Specifically, Lieber has originated general methods for the growth of semiconductor nanowires, and further led the field by demonstrating the growth of nanowires with controllable doping, which have been central to developments in nanoscale electronics and computing, the conceptualization and demonstration of the first nanowire heterostructures and superlattices, and the ground-breaking concept and synthetic methodology for introducing controlled stereocenters into nanowires, analogous to organic chemistry. Lieber has been responsible for groundbreaking advances in our understanding of the fundamental properties of these nanomaterials. These include elucidation of the mechanical properties of individual nanowires and carbon nanotubes, discovery of the diameter- and helicity-dependent electronic properties of nanotubes, and the demonstration that nanowires with controllable electrical and photonic properties can be synthesized. He has exploited these advances to originate an impressive array of nanoscale functional electronic and photonic devices, including nano-LEDs, the highest-performance nanotransistors, electrically-driven nanowire lasers, and most recently a new generation of nanoprocessors. Lieber has also pioneered studies at the boundary between nanoelectronics and biology. He demonstrated the first direct electrical detection of proteins, and pushed this to unprecedented levels with electrical sensing of individual viruses and ultrasensitive disease marker proteins, work that promises to revolutionize the diagnosis and treatment of human disease. Moreover, he has broken new ground in using nanodevices to record electrical activity from individual living cells and cell networks comprising tissue and organs, opening up new opportunities for fundamental biology through nanomedicine.

The Wolf Prize in Chemistry is one of six international prizes awarded once a year since 1978 by the Wolf Foundation in Israel to honor "achievements in the interest of mankind and friendly relations among peoples." The Wolf Prizes in the sciences are considered second in importance only to the Nobel Prize. As stated in the Wolf Foundation's press release this year: "Over one-third of all Wolf Prize winners have gone on to win the Nobel Prize in the fields of science honored by both prizes." The winners will accept their Prizes at a ceremony on May 13<sup>th</sup>, 2012 at the Knesset.