

## Biography of David Smith

Dr. David R. Smith is currently the William Bevan Professor of Electrical and Computer Engineering Department at Duke University and serves as Director for the Center for Metamaterial and Integrated Plasmonics. He holds a secondary faculty appointment in the Physics Department at Duke University, and is holds the positions of Adjunct Associate Professor in the Physics Department at the University of California, San Diego, and Visiting Professor of Physics at Imperial College, London. Dr. Smith received his Ph.D. in Physics from the University of California, San Diego (UCSD). Dr. Smith's research interests include the theory, simulation and characterization of unique electromagnetic structures, including photonic crystals, metamaterials and plasmonic nanostructures. Smith and his colleagues (then at UCSD) demonstrated the first left-handed (or negative index) metamaterial at microwave frequencies in 2000, and has continued to study the fundamentals and potential applications of negative index media since. In 2006, Smith, along with Sir John Pendry (Imperial College) and Prof. David Schurig (NC State University) introduced the technique of transformation optics as a new design approach for electromagnetic media. Later that year, Smith's group at Duke University reported the experimental demonstration of a transformation optical designed "invisibility cloak." Currently, Dr. Smith is the lead on a Multiple University Research Initiative involving four universities investigating transformation optical media, sponsored by the Army Research Office.

Dr. Smith's research on electromagnetic media includes the study of surface plasmons at visible and near infrared wavelengths. Surface plasmons are excitations that couple electromagnetic waves with electronic oscillations. Dr. Smith's group studies all aspects of plasmonic structures, including plasmon nanoparticles as a platform for biological and biomedical diagnostics, as well as integrated plasmonic components as chip-scale nanophotonic devices for information processing. Recent work has focused on the demonstration of a variety of optical components based on *long-range* plasmons, including couplers, bends, multimode couplers and interferometers.

In 2002, Dr. Smith was elected a member of The Electromagnetics Academy. In 2005, Dr. Smith was part of a five member team that received the Descartes Research Prize, awarded by the European Union, for their contributions to metamaterials and other novel electromagnetic materials. In 2006, Dr. Smith was selected as one of the "Scientific American 50," a group recognized by the editors of Scientific American for achievements in science, technology and policy. Dr. Smith's work has twice appeared on the cover of Physics Today, and twice been selected as one of the "Top Ten Breakthroughs" of the year by Science Magazine.

