



Professor George W. Crabtree

Argonne National Laboratory and University of Illinois, Chicago

Professor George W. Crabtree is Distinguished Professor of Physics, Electrical, and Mechanical Engineering at University of Illinois at Chicago, Senior Scientist and Distinguished Fellow in the Materials Science Division at Argonne National Laboratory, and Director, Joint Center for Energy Storage Research (JCESR). He has won numerous awards for his research, including the Kammerlingh Onnes Prize for his work on the physics of vortices in high temperature superconductors. He has won the University of Chicago Award for Distinguished Performance at Argonne twice, and the U.S. Department of Energy's Award for Outstanding Scientific Accomplishment in Solid State Physics four times, a notable accomplishment. He has an R&D 100

Award for his pioneering development of Magnetic Flux Imaging Systems. He is a Fellow of the American Physical Society, a charter member of ISI's Highly Cited Researchers in Physics, and a member of the U.S. National Academy of Sciences and of the American Academy of Arts and Sciences. He has published more than 400 papers in leading scientific journals, has collected over 16,000 career citations, and has given over 100 invited talks at national and international scientific conferences. He has testified before the U.S. Congress on the hydrogen economy and on meeting sustainable energy challenges. His research interests include next generation battery materials, sustainable energy, materials science, nanoscale superconductors and magnets, vortex matter in superconductors, and highly correlated electrons in metals.

Join us February 11 for 2 opportunities to engage with Dr. George Crabtree

1 The Challenge of Electricity Storage

Monday, February 11 at 3:00 pm

Location ASU Tempe Memorial Union, Ventana 241C

This **seminar** will discuss how electricity is our most versatile energy carrier, prized for the diversity of its sources including fossil, solar, wind, nuclear and hydro and for the diversity of its uses including lighting, refrigeration, ventilation, transportation, communication, computation, entertainment and medical diagnosis. One element of electricity as an energy carrier is missing – electricity storage decoupling its generation from its use. High energy density electricity storage in batteries is needed to electrify transportation, and high capacity electricity storage on the grid is needed for widespread penetration of renewable wind and solar electricity. Options and promising directions for next generation electricity storage will be presented.

2 Energy: The Next Fifty Years

Monday, February 11 at 6:00 pm

Location ASU SkySong, Convergence Room 150

After a brief reception, this **lecture** will address how energy is undergoing an historic transition, from predominantly fossil to more diverse and sustainable sources including wind, solar, biofuels and nuclear. These sources are increasingly capable of interchangeably serving a variety of end uses including transportation, lighting, refrigeration, heating, industry, entertainment, and communication. Science and technology lead the transition through discovery of new phenomena and development of new technologies for production, storage and use of energy. The agenda for science discoveries and technology innovation needed to achieve a vibrant, interactive and rapidly advancing global society over the next fifty years will be examined from the point of view of societal needs, international relationships, and promising science directions. The roles of electricity, chemical fuels and photons as sustainable and fungible energy carriers will be emphasized.

Questions: (480) 965-9572 Rebecca.Davis@asu.edu

RSVP online at www.asulightworks.com