



UNIVERSITY OF CALIFORNIA, IRVINE

Department of Chemical Engineering and Materials Science

Medical Initiatives from the Nuclear Community.... Applications of Innovative “Multi-Use Technologies” & Porous Wall Hollow Glass Microspheres (PWHGMs)

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3:00 – 4:00 p.m., Friday, October 18, 2013

Location: McDonnell Douglas Engineering Auditorium

Collaborations between the Savannah River National Laboratory (SRNL) and the medical community have been underway over recent years. At the cornerstone of these efforts is a concept called “multi-use technologies”, i.e., technologies that have been born, bred and developed in the nuclear complex and over many years, applied to a multitude of uses within the DOE complex. These unique technologies also have potential use to many other applications in a variety of fields that have not yet been pursued. Teams of scientists and engineers from SRNL, collaborating with medical researchers and clinicians from the GA Health Sciences University (GHSU) are currently looking more closely at these technologies and examining their potential for providing improved tools, and in some cases brand new tools, for doctors to improve patient care. This includes new concepts in diagnostics, repair and replacement of body parts, and treatment and therapy techniques. Examples of these collaborations will be presented in specific areas of digital radiography, microbiology, sensors/ robotics, advanced materials, and ceramics/ glass science. This includes the development of a new and unique product called Porous Wall Hollow Glass Microspheres (PWHGMs), which was awarded an R&D 100 Award in 2011, awarded ‘Top Honors’ at a Symposium on Discovery and Innovation in 2012, and has been patented and also licensed as a new and exciting drug delivery platform.

Biography:

Since receiving his M.S. from Harvard Univ. and Ph.D. from MIT, Dr. Wicks has published more than 200 publications and 16 patents issued, to date. Most of his contributions have involved the nuclear community and include development of systems for vitrification and management of high level radioactive wastes at Savannah River National Laboratory but recently he has developed applications derived from nuclear research for diagnostics, repair/replacement, and therapy/treatment of a variety of medical conditions. He is a Fellow and past President of the American Ceramic Society, served on the DuPont Corporate Ceramics Board, testified on waste management and weapons dismantlement at the National Academy of Sciences, and serves on International Scientific Advisory Boards involving radioactive waste management activities in France (CEA) and the European Communities (EC). He has received many top top honors including from DOE’s National Nuclear Security Administration (NNSA) for “some of the most innovative research being conducted by the researchers supporting the NNSA ... for discovery of Porous Wall Hollow Glass Microspheres,” the 2011 R&D 100 Award for “...one of the 100 most technical significant products introduced into the marketplace over the year,” and the Alpha Sigma Mu International Honorary Society “Distinguished Life Member” Award, which is the highest honor in the Society awarded to “those select few whose technical attainment and contributions in the field of materials science and engineering have resulted in significant benefits to mankind.”