



Nanotechnology: Nanomaterials, Nanomedicine and Nanocars

Wednesday March 21, 2012, Babbio 122, 11am

Professor James M. Tour
T. T. and W. F. Chao Professor of Chemistry
Smalley Institute for Nanoscale Science and Technology
Rice University, Houston, TX

An overview of several of the nanotechnology research areas in our group will be discussed. (a) Several new routes to the growth, preparation and manipulation of graphene will be outlined along with their applications. (b) Nanometer-sized carbon carriers, hydrophilic carbon clusters (HCCs), have been developed for targeted drug delivery for cancer chemotherapy and in the reduction of superoxide that results from traumatic brain injury associated with hemorrhagic shock. (c) Nanocars, single molecule nanomachines that are approximately 2 nm x 3 nm in size, have been prepared with wheels, fully rotating axles, suspension and several types of motors (photo-activated and chemically activated).

James M. Tour received his BS in chemistry from Syracuse University, his Ph.D. in synthetic organic and organometallic chemistry from Purdue, and postdoctoral training in synthetic organic chemistry at Wisconsin and Stanford. After 11 years on the faculty of the Department of Chemistry and Biochemistry at the University of South Carolina, he joined the Center for Nanoscale Science and Technology at Rice in 1999 where he is presently the T.T. and W.F. Chao Professor of Chemistry, Professor of Computer Science, and Professor of Mechanical Engineering and Materials Science. Tour was elected Fellow of the American Association for the Advancement of Science (AAAS). He was ranked one of the Top 10 chemists in the world over the past decade by a Thomson Reuters citations per publication index survey in 2009. He won the Feynman Prize in Experimental Nanotechnology in 2008, the NASA Space Act Award in 2008 for his development of carbon nanotube reinforced elastomers, and the Arthur C. Cope Scholar Award from the American Chemical Society for his achievements in organic chemistry in 2007. His many additional awards include the George R. Brown Award for Superior Teaching in 2007, Small Times magazine's Innovator of the Year Award in 2006, and the Nanotech Briefs Nano 50 Innovator Award in 2006. Tour's paper on Nanocars was the most highly accessed journal article of all ACS articles in 2005, and it was listed by LiveScience as the second most influential paper in all of science in 2005. Tour is a co-founder of NanoComposites, Inc. and a co-founder of RJAC-10, LLC, makers of the JAC line of corrosion inhibitor coatings. He also is the founder and principal of NanoJtech Consultants, LLC. Tour has over 400 research publications and 50 patents.

