



Society for Analytical Chemists OF PITTSBURGH



NOVEMBER MEETING

Monday, November 2, 2009
8:00 p.m.

Duquesne University
Laura Falk Hall

Dinner: City View Café (6th Floor)



CHAD A. MIRKIN, PH.D.

PROFESSOR

NORTHWESTERN UNIVERSITY
INTERNATIONAL INSTITUTE FOR NANOTECHNOLOGY, AND DEPARTMENTS OF CHEMISTRY,
MATERIALS SCIENCE AND ENGINEERING, BIOMEDICAL ENGINEERING, BIOLOGICAL
AND CHEMICAL ENGINEERING, AND MEDICINE

"NANOSTRUCTURES IN BIOLOGY AND MEDICINE"



5:30 PM	Social Hour	Student Union – City View Café (6 th Floor)
6:30 PM	Dinner	Student Union – City View Café (6 th Floor)
7:30 PM	Student Affiliate Meeting	Mellon Hall – Room 410
7:40 PM	Business Meeting	Mellon Science Building – Laura Falk Hall
8:00 PM	Technical Meeting	Mellon Science Building – Laura Falk Hall

ABSTRACT: Over the past decade, the world has witnessed an explosion of interest in the development of methods for synthesizing functional nanostructures. Nanostructures are both fundamentally interesting and technologically useful because they can have properties that are markedly different from molecular analogues and their bulk counterparts. In biology and medicine, these fundamental property differences make certain nanostructures attractive as diagnostic labels and therapeutic agents. For example, over the past decade we have developed synthetic methods for preparing polyvalent oligonucleotide gold nanoparticle conjugates. These structures exhibit unusual distance-dependent plasmonic properties, catalytic activity, cooperative binding, and a resistance to nuclease degradation-- properties which make them extremely useful as probes in molecular diagnostic assays, as intracellular gene regulation agents, and as siRNA delivery vehicles. The fundamental origins of these properties will be addressed as well as the prospect for using such structures for developing several useful tools in chemistry, biology, and medicine.

BIOGRAPHY: Dr. Chad A. Mirkin is the Director of the International Institute for Nanotechnology, the George B. Rathmann Professor of Chemistry, Professor of Chemical and Biological Engineering, Professor of Biomedical Engineering, Professor of Materials Science & Engineering, and Professor of Medicine.

Dr. Mirkin is a chemist and a world renowned nanoscience expert, who is known for his development of nanoparticle-based biodetection schemes, the invention of Dip-Pen Nanolithography, and contributions to supramolecular chemistry. He is the author of 380 manuscripts and over 350 patents and applications, and the founder of three companies, Nanosphere Nanolnk, and AuraSense which are commercializing nanotechnology applications in the life science and semiconductor industries. At present, he is listed as the third most cited chemist in the world (Thomson Reuters), and the top most cited nanomedicine researcher in the world (Nanomedicine Registry).

Dr. Mirkin has been recognized for his accomplishments with over 50 national and international awards. These include the \$500,000 MIT Lemelson Prize, the Havinga Medal, the Gustavus John Esselen Award, the Biomedical Engineering Society's Distinguished Achievement Award, a Department of Defense NSSEFF Award, the Pittsburgh Analytical Chemistry Award, the ACS Inorganic Nanoscience Award, the iCON Innovator of the Year Award, a NIH Director's Pioneer Award, the Collegiate Inventors Award, the National Inventors Hall of Fame (2002, 2004), an Honorary Doctorate Degree from Dickinson College, the Pennsylvania State University Outstanding Science Alumni Award, the ACS Nobel Laureate Signature Award for Graduate Education in Chemistry, a Dickinson College Metzger-Conway Fellowship, the 2003 Raymond and Beverly Sackler Prize in the Physical Sciences, the Feynman Prize in Nanotechnology, the Leo Hendrick Baekeland Award, Crain's Chicago Business "40 under 40 Award," the Discover 2000 Award for Technological Innovation, I-Street Magazine's Top 5 List for Leading Academics in Technology, the Materials Research Society Young Investigator Award, the ACS Award in Pure Chemistry, the PLU Fresenius Award, the Harvard University E. Bright Wilson Prize, the BF Goodrich Collegiate Inventors Award, the Camille Dreyfus Teacher-Scholar Award, the Alfred P. Sloan Foundation Award, the DuPont Young Professor Award, the NSF Young Investigator Award, the Naval Young Investigator Award, the Beckman Young Investigator Award, and the Camille and Henry Dreyfus Foundation New Faculty Award.

He is a Member of the President's Council of Science & Technology (PCAST, Obama Administration) and the National Academy of Engineering, and a Fellow of the American Association for the Advancement of Science. Dr. Mirkin has served on the Editorial Advisory Boards of over twenty scholarly journals. At present he is a member of the Editorial Advisory Boards of *Journal of the American Chemical Society*, *Accounts of Chemical Research*, *Angewandte Chemie*, *Advanced Materials*, *BioMacromolecules*, *Macromolecular Bioscience*, *SENSORS*, *Encyclopedia of Nanoscience and Nanotechnology*, *Chemistry-A European Journal*, *Chemistry & Biology*, *Nanotechnology Law & Business*, *The Scientist*, *Journal of Materials Chemistry*, and *Journal of Cluster Science*, *Plasmonics*. He is the founding editor of the journal *Small*, one of the premier international nanotechnology journals, and he has co-edited two bestselling books on nanobiotechnology.

Dr. Mirkin holds a B.S. degree from Dickinson College (1986, elected into Phi Beta Kappa) and a Ph.D. degree in chemistry from the Pennsylvania State University (1989). He was an NSF Postdoctoral Fellow at the Massachusetts Institute of Technology prior to becoming a chemistry professor at Northwestern University in 1991.

DINNER RESERVATIONS:

Please email William Straub, Arrangements Co-Chair at straub@pittcon.org, by Thursday, October 29, 2009 to make your dinner reservation. Should you not have email, please call Bill at 412-372-8312. If you want to be placed on the permanent dinner list, let Bill know when you RSVP. The entrée for November is (Herb Roasted Turkey Breast. Dinner will cost \$8 (\$4 for students) and checks can be made out to the SACP. If you have any dietary restrictions, let Bill know when you leave a message.

PARKING:

Duquesne University Parking Garage entrance is on Forbes Avenue. Upon entering the garage, you will need to get a parking ticket and drive to upper floors. Bring your parking ticket to the dinner or meeting for a validation sticker. Should any difficulties arise, please contact Dr. Mitch Johnson at Duquesne University.