



International Nano/Bio Probe Network

a workshop on

THE ULTIMATE CHALLENGE FOR NANO/BIO PROBES

January 16 & 17, 2006

**The NBIC and The Inn at Penn
Philadelphia, Pennsylvania USA**

Organized by the
Nano/Bio Interface Center
at the University of Pennsylvania

Supported by the National Science Foundation



The Ultimate Challenges for Nano/Bio Probes

The **Nano/Bio Interface Center** at the University of Pennsylvania, with the support of the National Science Foundation, is nucleating an International Molecular/Nano Probe Network. The concept is to provide a platform that facilitates advances in the field by:

- Articulating a global vision for the scientific community
- Informing science funding agencies
- Providing a mechanism for junior scientists to rapidly exchange information
- Enabling routine communications between international collaborators, and
- Facilitating international partnering for large research programs

Participants will be those pushing the limits of the scientific advances... not just users. By enabling regular interactions amongst those at the forefront of probe development, the field as a whole can advance more aggressively. By developing consensus opinions on the future of the field with the credibility that arises from the reputations of the participants, institutions may be influenced toward a larger vision. There is much enthusiasm for this concept from both academe and industry.

The goal is to facilitate much of this electronically. We envision for example, electronic chat venues, virtual workshops on focused topics, infrastructure for electronic group meetings, electronic conferences for road mapping, etc.

As a first step, NBIC is hosting a workshop on **The Ultimate Challenges for Nano/Bio Probes** in Philadelphia in January 2006 where participants will develop a value proposition for the Network. This will be an exclusive meeting, by invitation only, that will define the goals of the Network. Local meeting cost including meals, will be borne by the NBIC. (no registration fee will be charged but registration is required for planning purposes)

Registration

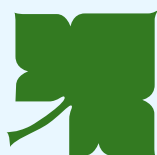
Registration will be accepted via [email](mailto:), phone (215-746-3210), or online at www.nanotech.upenn.edu.

Lodging and Travel

The 2006 NBIC International Molecular/Nano Probe Network Workshop will be held in Philadelphia, Pennsylvania at the Laboratory for Research on the Structure of Matter (LRSM) – located 30 minutes from the Philadelphia International Airport and two blocks from the Hilton Inn at Penn Hotel. Day two of the workshop will take place at the Inn at Penn.

The NBIC has reserved a block of rooms with the hotel at the Inn at Penn. Participants are asked to make their own hotel reservations.

HOTEL RESERVATION DEADLINE: **January 3, 2005**



The Hilton Inn at Penn

3600 Sansom Street

Philadelphia, PA 19104

Phone Reservation: 215-222-0200

Online Reservation: <http://www.theinnatpenn.com/>

Room Rate is \$199/night + 14% tax

Preliminary Program

Ultimate Challenges for Nano/Bio Probes

DAY 1 Monday, January 16, 2006 at the NBIC (3231 Walnut Street)

- 9:00 AM Welcome and Introduction
9:15 Premise for the Proposal of an International Network on Local Probes
- OVERVIEWS OF OPPORTUNITIES AND CHALLENGES**
- 9:30 Pushing the Spatial, Energy, and Environmental Limits of Local Probes
11:00 Single Molecule Measurements
12:00 PM Lunch
1:00 Emerging Directions: New Measurements, New Applications
2:15 Combining Complementary Probes for Biological Systems
3:00 Break
3:15 Panel: Defining Probes that Enable Future Technologies
(perspectives from industry and government agencies)
5:00 International Network Proposition
- 5:30 Reception & Discussion (Inn at Penn)
6:30 Dinner

DAY 2 Tuesday, January 17, 2006 at the Inn at Penn (3600 Walnut Street)

- 9:00 AM Practical Opportunities and Challenges
(on chip electronics, discovery platforms, tips, etc)
9:45 Defining the Value Proposition for an International Network
Designing the Network
- What can the network do for you?
 - What components/capabilities/activities can the network provide that will benefit participants?
 - What is the optimum topical breadth?
 - What environment is required to facilitate free information exchange?
 - What challenges might be anticipated in implementation?
 - What oversight/steering mechanism should be in place at the strategic level?

Potential network lead participants include (to date):

Y. Goldman (USA), R. Palmer (UK), Y. Kuk (Korea), M. Welland (UK), S. Lindsay (USA), L. Eng (Germany), S. Kalinin (USA), D. Rugar (USA), B. Huey (USA), A. Engel (Switzerland), L. Novotny (USA), V. Dravid (USA), M. Roco (NNI), M. Garner (Intel), C. Prater (Veeco)

Initial list of topics:

Combined TIRF- Traps-SPM	Protein Mechanics
Multiple Modulation Probes	Exploiting Near Field Optical Effects
Moving PFM into the Bio Arena	Discovery Platforms
3-D Tomography of Bio Molecules	Spatially Resolved Spectroscopy of Biological Molecule
Spin Based Nanoscale Probes	