



**1<sup>st</sup> Conference on  
Advanced Nanotechnology:  
Research, Applications, and Policy  
October 21-24, 2004**

**Preliminary Program**

Note: Italic indicates “*speaker*” \*indicates “*corresponding author*”

All events held at the Crystal City Marriott Hotel in the Crystal Forum room, unless otherwise specified

Conference Chair

*Christine Peterson*, Foresight Institute

**Thursday, October 21**

- 8 to 9:30AM Congressional Staff Breakfast on Nanotechnology Policy (invitational, RSVP separately from conference)  
*Rayburn House Office Building, Capitol Hill*
- Noon to 2 PM Foresight Institute Luncheon Briefing, with Foresight President *Scott Mize* and VP *Christine Peterson* (invitational, RSVP separately from conference),  
*Monticello Ballroom*
- 6 to 8 PM Conference Registration, *Foyer 2<sup>nd</sup> floor*

**Friday, October 22**

**1<sup>st</sup> Symposium on Molecular Machine Systems**

Friday Co-Chairs:

*Prof. William A. Goddard, III* Caltech  
*Prof. Ralph Merkle*, Georgia Tech

- 7:30 AM Conference Registration, *Crystal Forum Foyer*
- 8:30 AM Continental Breakfast, *Crystal Forum Foyer*
- 9:20 AM **Welcome and Introduction**  
*Ralph Merkle*, Georgia Tech  
Symposium Co-Chair
- 9:30 AM **DNA: Not Merely the Secret of Life**  
*Nadrian Seeman*, NYU
- 10:00 AM **A Synthetic Approach to Water Soluble Nanoscale Molecules with Controlled Structures**  
*Christian Schafmeister\**, Stephen Habay, Christopher Levins, Paul Morgan, Gupta Sharad, Gregory Bird; University of Pittsburgh
- 10:20 AM **Artificial Molecular Machines**  
*Amar Flood\** and J. Fraser Stoddart, UCLA
- 10:40 AM Break
- 11:00 AM **Design of Macromolecular Structures and Interactions**  
*David Baker*, University of Washington

- 11:30 AM **Design and Modeling of Nanoscale Systems: Prediction of Structures and Properties**  
*William A. Goddard III*, Caltech  
Symposium Co-Chair
- 12:00 PM Luncheon for those who selected this option, *Monticello Ballroom*
- 12:30 PM Luncheon Address: *Nick Reynolds*, Accelrys  
**Computer Aided Nanodesign: Connecting Molecular Design to the Engineering Process**  
*Monticello Ballroom*  
**Lunch talk is open to all conference attendees**
- 1:00 PM Poster Session, *Monticello Ballroom*
- 2:00 PM **Nanoassembly and Nanorobots**  
*Ari Requicha*, USC Laboratory for Molecular Robotics
- 2:30 PM **Pathway to Diamond-Based Molecular Manufacturing**  
*Robert Freitas*, Institute for Molecular Manufacturing
- 3:00 PM **Design and Analysis Techniques for Complex Nanosystems**  
*J. Storrs Hall*, Molecular Engineering Research Institute/Nanorex Inc.
- 3:20 PM **Indirectly-Replicating Nanomachines: a Kinematic Cellular Automata Approach**  
*Tihamer Toth-Fejel*, General Dynamics
- 3:40 PM **Coordinating Microscopic Robots for Medical Applications**  
*Tad Hogg*, HP Labs
- 4:00 PM Break
- 4:30 PM **A Roadmap to Productive Molecular Machine Systems: Recent Progress, Next Steps, and Strategic Objectives**  
*K. Eric Drexler*, Molecular Engineering Research Institute
- 5:00 PM **Toward Atomically-Precise Bottom-up Nanomanufacturing**  
*Ralph Merkle*, Georgia Tech
- 5:30 PM **Special interest groups meet**, *Sign up or suggest a new topic at registration desk*
- 7:00 PM **Foresight Institute Feynman Prize Banquet**  
*Potomac Ballroom*  
Attendees must register in advance: see reg. desk  
Awards will be presented to the winners of:  
*2004 Foresight Institute Feynman Prize in Nanotechnology: Theory and Experimental*  
*2004 Foresight Institute Prize in Communication*  
*2004 Foresight Institute Distinguished Student Award*
- 9:00 PM **Keynote: Ray Kurzweil**, Winner, National Medal of Technology, *Crystal Forum*  
**An Exponentially Expanding Future from Exponentially Shrinking Technology**
- 10:00 PM Informal discussion continues in the lounge

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## Saturday, October 23

Saturday Co-Chairs:

*Scott Mize*, Foresight Institute

*Brad Templeton*, Electronic Frontier Foundation

- 7:30 AM Conference Registration, *Crystal Forum Foyer*
- 8:00 AM Continental Breakfast, *Crystal Forum Foyer*
- 9:00 AM **Agenda for High Impact Nanotechnology Development**  
*Scott Mize*, Foresight Institute
- 9:30 AM **Commercial Opportunities in Nanotechnology**  
*Sean Murdock*, NanoBusiness Alliance
- 10:00 AM **Near-term Medical and Environmental Products Built at the Atomic Scale: Artificial Kidney and Water Purification**  
*Gayle Pergamit*, Martin Edelstein Biophiltre/Agua Via, LLC
- 10:30 AM Break
- 11:00 AM **Clean Molecular Manufacturing**  
*Chris Phoenix*, Center for Responsible Nanotechnology
- 11:30 AM **Nanotechnology for Clean Energy and Resources**  
*Steve Gillett\**, Foresight Institute, and  
*Ralph Merkle*, Georgia Tech
- 12:00 PM **Assessing the Potential of Molecular Nanotechnology for Space Operations**  
*Thomas McKendree*, Raytheon
- 12:30 PM Luncheon for those who selected this option, *Monticello Ballroom*
- 1:00 PM Luncheon Address: *Peter J. Conley*, The ANALYTIQ Group, **Aligning the Capital Markets with the Millennium Challenges** *Monticello Ballroom*  
**Lunch talk is open to all conference attendees**
- 1:30 PM Poster Session, *Monticello Ballroom*
- 2:00 PM **Molecular Manufacturing: International Competitiveness and National Security**  
*Calvin Shipbaugh*, formerly RAND
- 2:30 PM **Nanomedicine and Medical Nanorobotics**  
*Robert Freitas*, Institute for Molecular Manufacturing
- 3:00 PM **Applying Nanotechnology to the Challenges of Global Poverty**  
*Bryan R. Bruns*, Foresight Institute
- 3:30 PM Break
- 4:00 PM **Molecular Manufacturing: Top Ten Impacts**  
*Chris Phoenix*, Center for Responsible Nanotechnology
- 4:30 PM **What Would a Nanotech Economy Look Like?**  
*David Friedman*, Santa Clara University, School of Law
- 5:00 PM **Preserving Privacy as Nanosurveillance Arrives**  
*Brad Templeton*, Electronic Frontier Foundation
- 5:30 PM **Debate: Privacy vs. Openness in an Era of Nanotechnology**  
*Brad Templeton* defends privacy while *Prof. Robin Hanson* of George Mason University advocates openness for dealing with ubiquitous inexpensive nanosensing capabilities in public and private hands.
- 6:15 PM Break for dinner (on your own)
- 6:15 PM **Student Gathering**  
Join *Ralph Merkle*, Georgia Tech, and student liaison, *Jordan Amadio*, Princeton University at a roundtable in the Crystal Forum. Informal student discussions continue over dinner or drinks (TBD)

8:00 PM **Discussion groups meet**, *Sign up or suggest a new topic at registration desk*

10:00 PM Informal discussion continues in the lounge

## Sunday, October 24

Sunday Co-Chairs:

*Scott Mize*, Foresight Institute

*Howard Lovy*, NanoBot

- 7:30 AM Conference Registration, *Crystal Forum Foyer*
- 8:30 AM Continental Breakfast, *Crystal Forum Foyer*
- 9:30 AM **Maximizing Benefits & Minimizing Downsides of Nanotechnology**  
*Christine Peterson*, Foresight Institute
- 10:00 AM **Nanotechnology in Asia**  
*Robert Haak*, Asian Technology Information Program
- 10:30 AM **U.S. Nanotechnology Policy: Bridging the Gaps**  
*Richard H. Smith*, Nanoverse, LLC and Nanotechnology Policy Foundation
- 11:00 AM Break
- 11:30 AM **The Importance of Nanotech Politics**  
*Adam Keiper*, The New Atlantis
- 12:00 PM **Transnational Regulatory Models for Molecular Nanotechnology**  
*Gary Marchant\**, Jonathan Swartz, Michael Volk  
Arizona State University College of Law
- 12:30 PM Luncheon for those who selected this option
- 1:00 PM Luncheon Address: *LaMar Hill*, Albany NanoTech  
**Stimulating Jobs in Nanotechnology**  
*Potomac Ballroom D,E*  
**Lunch talk is open to all conference attendees**
- 1:30 PM Poster Session, *Potomac Ballroom D,E*
- 2:00 PM **Nanotech Goals and Conflicts**  
*Howard Lovy*, NanoBot Blog
- 2:30 PM **Foresight Guidelines Version 4.0: Self Assessment Scorecards for Safer Nanotechnology Development**  
*Neil Jacobstein*, Institute for Molecular Manufacturing
- 3:00 PM Break
- 3:30 PM **Nanotechnology: Hyperbole and Policy Making**  
*David Berube\**, J.D. Shipman  
University of South Carolina NanoCenter
- 3:50 PM **Nanotechnology Innovation and the Patent Thicket: Which IP Policies Promote Growth?**  
*Ted Sabety*, Patent Attorney, Sabety +associates PLLC
- 4:20 PM **Concluding Remarks**  
*Christine Peterson*, Foresight Institute,  
Conference Chair

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