



CNS NEWSLETTER  
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CNSASU is a listserv targeted to social scientists, natural scientists and engineers, decision makers in the public and private sector, and other interested members of the community.

### CNS-ASU INAUGURATES SCIENCE CAFÉ\*

The Center for Nanotechnology in Society (CNS-ASU) brought science and the public together in its first Science Café, held March 23rd at Mill's End Espresso. As the first of its kind in Phoenix, the Café creates a casual dialogue between scientists and the community. Speaking from ASU, Dr. **Stuart Lindsay** (right) of the Biodesign Institute gave a talk entitled, "Humankind's Future on the Head of a Pin: Nanotechnology -- What is it? What can it do?"



**Quinn Spadola** (left), a CNS-ASU Fellow and a graduate student in the Physics department, has been the prime mover behind the implementation of the Science Café. She handles public relations and speaker recruitment, along with the technical side. Her own research is on a nano-pore sequencing technique.

Lindsay discussed the incredible scale at which nanotechnology works, a *billionth* of a meter. He described his creation of and research with the Scanning Tunneling Microscope and its use in the field of nanotechnology. The ability to visualize at this small scale has transformed Lindsay's understanding of physics by making the phenomena of quantum mechanics visible. Lindsay spoke about the potential of nanotechnology and provided an introduction to his work. About 30 people were in

attendance, and the crowd slowly grew as Mill Avenue passersby were drawn in by talk of “nanoscience.” The public used the occasion to learn about nanotechnology, asking a variety of technical, spiritual, and political questions:

1. Will nanotechnology help combat the avian flu?  
Lindsay responded that nanotechnology will not be able to do anything about the *current* avian flu problem, but it may be able to help with future outbreaks through synthetic antibiotics nanotechnology.
2. How do the insights drawn from nanotechnology affect the way in which we conceive the human self?  
For Lindsay, the essence of humanity is questioning; therefore, scientific inquiry and discovery can only make us more human.
3. How should Arizona’s state government prioritize the funding of research into nanotechnology amidst other political concerns of education, health, etc.?  
Lindsay firmly established himself as a supporter of education first and argued that the number one priority of government should be to support education. He also believes that better K-12 education will lead to a larger number of scientists and more research in the long term.
4. Do we need to worry about dangerous environmental and health concerns resulting from the creation of new nanoparticles?  
Lindsay argued that some concerns are exaggerated, but that there does need to be research into and regulation of the safety aspects of nanotechnology.
5. Nanotechnology is so small so as to be invisible. Is this invisibility part of the reason why the potential dangers of nanotechnology have raised such alarm?  
Lindsay drew a parallel between radioactivity and nanotechnology. Radioactivity was both fetishized and feared because of its invisibility, and nanotech may follow the same path as it is likewise invisible.
6. Is there anything that scientists need to learn from the public in order to go about understanding the implications of their work?  
Lindsay emphasized the importance for scientists to talk with and teach the public.

**Zachary Pirtle**, a CNS-ASU intern, prepared this report for the newsletter.

The second Science Café was held April 20 at 7:30 at Mills End Espresso, 310 S. Mill Avenue, Tempe before another audience of thirty interested people. Dr. **Neal Woodbury** (left) spoke on “Evolution on a Chip: Making Molecules Work for Us.” A report will be included in the May Newsletter.



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\*Science Café steals a page from the salons of France, Café Philosophique and our CNS-ASU colleagues at Wisconsin to bring together community members and academics concerned with how science, including nanotechnology, will change the future. The typical café is a casual event in an informal setting where a scientist speaks for 5-20 minutes on a topic, and the public has the opportunity to ask questions and interact with the scientist.

## **ASU'S NANOTECH IN SOCIETY CENTER SPEAKER SERIES CONTINUES**

- **APRIL 26** “Hubris and Hybrids: On the Cultural Assessment of Nanotechnology,” **Andrew Jamison**, noon-1:30 p.m., Biodesign Auditorium

**Andrew Jamison** is Professor of Technology and Society at Aalborg University in Sweden and Guest Professor, Environmental Science, Malmö University College, since 2003.



As with many new technologies before they find their appropriate -- and often inappropriate -- uses in society, the meanings of nanotechnology are still unclear. There is both a great deal of hype and a good deal of horror accompanying the emergence of this new field of research, and it can therefore be of some importance to attempt to provide a cultural assessment of nanotechnology. Drawing on a conceptual framework that he developed with Mikael Hård in their recent book, *Hubris and Hybrid: A Cultural History of Technology and Science* (Routledge 2005), Andrew Jamison will discuss both the hubris and the hybrids that are involved in the development of nanotechnology. He will also present some of the efforts that are being made in Europe to provide a cultural assessment of nanotechnology.

- **MAY 2** “The Nanomedicine Roadmap Initiative: NIH’s Interest in Nanotechnology and the National Nanotechnology Initiative,” **Jeffrey Schloss**. 3:30-5 p.m., Biodesign Auditorium, attendance open to ASU scientists and engineers

**Jeffrey Schloss** is the co-Chair of the Nanomedicine Roadmap Initiative, NIH and a program director in the Division of Extramural Research at the National Human Genome Research Institute, with responsibility for DNA sequencing technology development. He will speak to an audience of ASU scientists and engineers at about the Nanomedicine Initiative, a ten-year program whose eventual goal is to manipulate precisely cellular processes by repairing or building new structures in cells to prevent and treat disease. A goal of the Nanomedicine Roadmap Initiative is to use quantitative approaches to understand, from an engineering perspective, the design of biomolecular structural and functional pathways, and to use that information to design and build functional biocompatible molecular tools to “dial” the body’s systems back into “normal” operating ranges after function has been perturbed by disease. The event is co-sponsored by the Biodesign Institute, its Office for Government and Industry Liaison and the Center for Nanotechnology in Society.



- **MAY 3** “Nanomedicine in the NIH Roadmap: Priorities, Vision, & Implications,” **Jeffrey Schloss**, 11 a.m.-12:30 p.m., Biodesign A, Room 10/14, attendance open, seating limited
- **MAY 17** “Celebrating 20 Years of Scanning Probe Microscopy at ASU,” **Lindsay Stuart** and **Taylor Jackson**, 10:00-12:00 a.m., Biodesign B room L10/14

**Stuart** and **Jackson** will present an historical review on the occasion of the 20<sup>th</sup> anniversary of scanning probe microscopy, including a 15-minute video taken in the mid-eighties. Jackson will speak on his research into the history of nanotechnology at ASU. The event is co-sponsored by the CNS-ASU and the Lindsay Lab.

## UPCOMING NANO-RELATED EVENTS

- **1st Annual Nanopolicy Conference, “NanoWorld: Toward a Policy for the Human Future,”** April 28, 2006, National Press Club, Washington, D.C. **David Guston**, Principal Investigator and Director of CNS-ASU, will moderate both response panels. To register for this free event, contact the Center on Nanotechnology and Society at [RSVP@thehumanfuture.org](mailto:RSVP@thehumanfuture.org) or visit our website at <http://www.nano-and-society.org>. If you have questions, please contact the Center on Nanotechnology and Society at 312-906-5337.
- **NanoTX**, September 27-28, 2006, Dallas Convention Center. **David Guston** will speak about the Center for Nanotechnology in Society. <http://www.nanotx.biz/>

## CNS-ASU NEWS

- **Joi Trottier** (below) has joined CNS-ASU as an Administrative Associate and brings more than 8 years in business development and several years at the University of Southern Maine. She worked with the Institute for Child & Family Policy on a grant from the US Department of Justice’s Office on Violence Against Women to evaluate the effectiveness of programs throughout the country that were funded by the Violence Against Women Act. She recently moved to Arizona from New England and will be assisting in providing organization and support for CNS-ASU activities, programs and projects. Joi is also transferring into the Bachelor of Interdisciplinary Studies program at ASU, which will enable her to complete her degree with a two subject-area concentration in English and Political Science.



## PUBLICATIONS FROM CNS-ASU

- **David Guston's** review of the Rosalyn Berne book, *Nanotalk*, will appear in the *Journal of Nanoparticle Research*. To read it now, go to <http://cns.asu.edu/cns-library/documents/RosalynBookReview.pdf>.
- **Torin Monahan** (right), co-leader of the Freedom, Privacy and Security Thematic Research Cluster is editor of *Surveillance and Security: Technological Politics and Power in Everyday Life* to be published by Routledge in August 2006. The book critically investigates the politics of surveillance technologies in everyday life. From biometric technologies at airports and borders, to video surveillance in schools, to radio frequency identification (RFID) tags in hospitals, to magnetic-strips on welfare food cards—surveillance technologies integrate into all aspects of modern life, but with varied effects for different populations. By focusing on everyday examples, this collection reveals how power is mobilized and contested through surveillance technologies. The result is a fresh and empirically grounded look at surveillance and security.
- An article written by **Y Chen, J.C. Crittenden** (both working with CNS-ASU), **S. Hackney, L. Sutter** and **D.W. Hand** entitled “Preparation of a Novel TiO<sub>2</sub>-based p-n Junction Nanotube Photocatalyst” has been named 2005 Runner up for the editor’s choice award for the most significant technology based paper by the *Journal of Environmental Science and Technology*, the premier journal covering environmental science and technology (Vol. 39, No. 5, 1201-1208, 2005). To read about the award, go to [http://pubs.acs.org/subscribe/journals/esthag-w/2006/mar/tech/kb\\_nanotech.html](http://pubs.acs.org/subscribe/journals/esthag-w/2006/mar/tech/kb_nanotech.html). To read the abstract, go to <http://pubs.acs.org/cgi-bin/abstract.cgi/esthag/2005/39/i05/abs/es049252g.html>.
- **Fisher, Erik**, a CNS-ASU supported doctoral student at University of Colorado-Boulder, published “Nanotechnology Legislation: Contradictory intent? US federal legislation on integrating societal



concerns into nanotechnology research and development” in Science and Public Policy, 33(1), 5-16, 2006. Follow the link to the article on our website.



- **Roger Pielke** (left) submitted an essay, “Science Policy Without Science Policy Research” to bridges, the Office of Science and Technology’s publication on Science and Technology. It was published in Vol. 9, April 2006. Read the essay at <http://www.ostina.org/content/view/577/>.
- **Dietram A. Scheufele** (right), co-leader of the Real-time Technology Assessment program, Public Opinion and Values (RTTA2), will have his article “Five lessons in nano outreach” published in Materials Today, next month (Vol. 9, Issue 5, 64, 2006).
- **Torin Monahan** is also author of “Nothing to Hide: Governing Mentalities of Everyday Surveillance,” a paper presented at Crime, Justice and Surveillance conference in Sheffield, U.K. in April and of “The School System as a Post-Fordist Organization: Fragmented Centralization and the Emergence of IT Specialists” published in Critical Sociology (31 (4): 583-616, 2005). He has also written a review of Philip B. Heymann and Juliette N. Kayyem’s Protecting Liberty in an Age of Terror, published in Law and Politics Book Review (16 (3): 211-214).

## PRESENTATIONS AND PAPERS

- **Marilyn Carlson** (below), Co-PI at CNS-ASU and Professor of Mathematics, **Michael Oehrtman**, Director of the ASU Pathways Project and Assistant Professor of Math and Statistics, **Andrew Chizmeshya** (ASU NUE project and Associate Research Scientist in the Center for Solid State Science), and **Ira Bennett**, CNS-ASU Post-Doctoral Research Associate, presented papers describing advances in teaching and applications of mathematics for Nanoscience and Engineering at the Mathematics Perspectives session at the April Materials Research Society Symposium on Education in Nanoscience and Engineering in San Francisco. This two-day Symposium was international in scope with contributions assessing the state of NSET education in EEU countries, India, China, and Japan, as well as the US. It is an important activity of the ASU NUE Project (PI Professor **Ray Carpenter**, Center for Solid State Science, with Co-PIs Carlson, **Jeff Drucker**, **Stephen Goodnick**, and **Vincent Pizziconi**). The Chairs of the Mathematics session at which Carlson presented, Prof. **Harry Kroto** of Florida State (Co-winner of the Nobel Prize for the discovery of Buckminster Fullerenes) and Dr. **Nancy Healy** (GA Tech’s NNIN Program), noted that the current state of mathematical education for students of Nanoscience, Engineering, and Technology is not sufficient for rapid progress in the field. Marked improvements are expected to result from the Pathways Project at ASU and comparable programs at other Universities. Read more about Pathway’s at their website <http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=0407412>.
- **Jason Robert** (below), co-leader of the Human Identify, Enhancement and Biology Thematic Research Cluster (TRC2) participated in the NABIS Conference, Nanotechnology in Society’s Context, at the University Club of Chicago in March. In the first session, he helped set the stage for a discussion of the societal and ethical dimensions of nanotechnology by presenting an overview of CNS-ASU focusing specifically on productive collaborations between scientists, social scientists, and humanists. Additionally, Dr. Robert met with **Linda Hogle**, his TRC 2 counterpart at Wisconsin-Madison, participated in her graduate seminar on neuroethics in mid-April and had discussions with CNS-ASU collaborators **Clark Miller** and **Joan Fujimura**.



- **International Studies Association.** **Kenneth Abbott** and **Sandeep Gopalan** of the ASU College of Law participated in a panel on the regulation of nanotechnology at the annual conference of the ISA in San Diego in March. Their paper was entitled “Transnational Models for the Regulation of Nanotechnology.” Professors Abbott and Gopalan also participated in a workshop for scholars interested in international aspects of nanotechnology regulation. The workshop drew scholars from Australia and India and well as the U.S.
- The **International Nanotechnology and Society Network (INSN)** is a collection of social scientists from 11 different countries and 37 institutions interested in the potential societal impacts and implications of nanotechnology. The third meeting of the INSN took place last month in Oxford UK. The meeting, in coordination with the James Martin Forum, was attended by 16 members representing five countries. CNS-ASU was represented by **Dan Sarewitz** and **Ira Bennett**. Topics covered included, the mission statement, finalizing members of the executive committee, progress reports on collaborative projects, planning for the next meeting and preparations for a research workshop. If you are interested in the INSN please contact us at [insn@asu.edu](mailto:insn@asu.edu). A full workshop report is available at <http://www.nanoandsociety.org/meetings/>.
- **Jason Robert** was also invited to present his work on the bioethics of translational neuroscience at Barrow Neurological Institute in Phoenix. Robert’s presentation focused in part on research in neural prosthetics, such as that undertaken by CNS-ASU scientist Jiping He.

## **NANO-RELATED EVENTS**

- The Georgia Tech School of Public Policy will host the Atlanta Conference on S&T Policy, May 18-20, 2006. **Dr. John Marburger**, Director of the Office of Science and Technology Policy under President George W. Bush, will give the keynote address, and a number of plenary sessions will review the state of research in key subfields. **Alan L. Porter, Philip Shapira, David J. Schoeneck, Ajay Sivaram Bhaskarabhatla, Jan Youtie, and Dirk Libaers** from CNS-ASU partner, Georgia Institute of Technology, will present “Explorations in Research and Innovation Systems Assessment: Where is Nano Going?” **Dirk Libaers**, from GA Tech’s School of Public Policy, will also present “Organizing for Scientific Performance: The Impact of Organizational Affiliation on Scientific Productivity in Nano Science & Technology.” A number of U.S. and European social scientists studying nanotechnology will participate and present their work. For further information, see <http://www.spp.gatech.edu/conference2006.php>. (Submitted by **Susan Cozzens**.)
- The International Association of Nanotechnology is a non-profit professional association to foster research and business collaboration worldwide for the benefits of society. Their site announces two premier scientific conferences in 2006:
  - [NanoBio 2006](#), June 19-21, 2006 and
  - [International Congress of Nanotechnology 2006](#), October 30-November 2, 2006

## **NANOLINKS**

- <http://cns.asu.edu/cns-library/index.htm>. Our Library contains the intellectual products from CNS-ASU — books, articles, presentations, reports, etc. It is not a complete list of all works produced by CNS-ASU personnel, but it is intended to be a comprehensive list of their work under the Center’s sponsorship.
- <http://newsroom.msu.edu/site/indexer/2749/content.htm>. The spring issue of Practicing Anthropology is dedicated to nanotechnology. Take this website to the press release. We will have a copy of the journal in our library shortly.

- <http://nihroadmap.nih.gov/>. The Nanomedicine Roadmap Initiative. (See May 2-3 event story above.)
- <http://commerce.senate.gov/pdf/schloss-021506.pdf>. Dr. Jeffrey Schloss's Senate testimony for NIH and the Nanomedicine Initiative. (See May 2-3 event story above.)

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