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CNS-ASU Newsletter January-February 2007, Vol. 2.3



## Science Café Moves to Arizona Science Center in Downtown Phoenix

### January 19 - *Adaptive Technologies for the Central Nervous System: Are We Changing What It Means to be Human?*

CNS-ASU's partnership with the Arizona Science Center officially kicked off with the January Science Café. Situated in the spacious lobby of the Arizona Science Center against a backdrop advertising the center's



Body Worlds 3 exhibit, January's café was presented by **Dr. Ranu Jung**, Director of the Center for Adaptive Neural Systems in the Biodesign Institute, and bioethicist **Dr. Jason Robert**, Assistant Professor in the School of Life Sciences. Audience questions reflected concerns with end uses of the described technology, including wondering about the directions that the Department of Defense - which funds some of the research - might want to take it, such as to enhance the abilities of soldiers. Other questions concerned who would have access to this technology, what its metric of "success" will be, and Jung's vision for the radical distribution of this technology through society.

### February 16 - *Why Things (Still) Don't Fit: Human Variation and Ergonomics in the 21st Century*



Ever wonder why, in an age of computer-aided design, digital human modeling and virtual prototyping, some clothes continue to fit so poorly? The good and not-so-good approaches that designers use to accommodate body sizes

and shapes in today's population was the topic of the February café, presented by **Dr. Claire Gordon**, a research scientist in Biological Anthropology with the Army Materiel Command and 2006-07 Visiting Scholar in the School for Human Evolution and Social Change, along with CNS-ASU Post-Doc **Dr. Ira Bennett**. Gordon drew on her experience in Army ergonomics to recount how the U.S. Army came to recognize design standards that were unsuitable for women

CNSASU and CNSINT are listservs targeted to social scientists, natural scientists and engineers, decision makers in the public and private sector, and other interested members of the community.

### Director's Corner:



Samuel Jack Guston and Arie Rip discuss the differences between real-time technology assessment and constructive technology assessment.

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### Upcoming Nano Events:

*(Open to the public unless otherwise noted)*

**Mar 9, 2007:** Occasional Speaker: "Turning Nano Green: The Hybrid Imagination in Action." **Andrew Jamison**, Professor of Environment, Technology and Society at Aalborg University in Denmark, will discuss the enormous task of bringing nanotechnology and green knowledge into a more intimate and mutually beneficial relationship with each other.  
**Mar 21, 2007:** ["Government, Academia and Industry: Hispanic Leaders on Nanotechnology,"](#) 10:00 am - Noon, Biodesign Auditorium.

**Mar 23, 2007:** [Arizona Nanotechnology Cluster Symposium: "Real Progress, Real Products,"](#) 8:00 am - 5:30 pm, Scottsdale Community College Performing Arts Center.

**Mar 23, 2007:** Science Café: "Transferring Western Technology to Developing Countries: Good Intentions, Unexpected Outcomes." **Bert Jacobs**, Principal Investigator in the Center for

and minorities. Audience questions included concerns about how design issues continue to impact the safety of soldiers.

## Hispanic Leaders Coming to ASU for Nanotechnology Panel Discussion

Three esteemed Hispanic representatives from government, academia and industry will discuss nanotechnology in their



respective fields at a panel sponsored by More Graduate Education @ Mountain States Alliance, the Western Alliance to Expand Student Opportunities, and CNS-ASU. Moderated by **Dr. Anthony Garcia**, Professor of Bioengineering in the Ira A. Fulton School of Engineering at ASU, the panel will feature **Dr. Manuel Marquez-Sanchez**, Senior Scientist and Director of the Nanotek Consortium at Kraft Foods, **Dr. Carlos A. Gonzàlez**, Director of the NIST Center for Theoretical and Computational Nanosciences at the National Institute of Standards and Technology (NIST), and **Dr. Vladimiro Mujica**, Deputy Director of the NIST Center for Theoretical and Computational Nanosciences. The panel will be held on March 21st in the Biodesign Institute Auditorium from 10:00 a.m. to 12:00 noon, and is open to all interested parties.

## AZ Nanotechnology Cluster Symposium: "Real Progress, Real Products"

The second annual Arizona Nanotechnology Cluster Symposium will be held on Friday, March 23, 2007 at the Scottsdale Community College Performing Arts Center. This will be an all-day event with participation from local, national and international organizations. In line with its theme, "Real Progress, Real Products," the symposium will assess and inform participants about the current status of nanotechnology. Presenters and participants from ASU include: **Dr. Stuart Lindsay**, Director, Center for Single Molecule Biophysics; **Dr. Sayfe Kiaei**, Ira A. Fulton School of Engineering; **Dr. Sandwip Dey**, School of Materials; **Dr. Stephen Goodnick**, Associate Vice President for Research, ASU Research and Economic Affairs. [To register for the symposium, visit the AZ Nanotechnology Cluster's website.](#)

## New Biodesign Fellow



CNS-ASU is pleased to welcome **Parul Agrawal** as its newest Biodesign Fellow. Parul is a PhD student at the new School of Materials and works in Frederic Zenhausern's research group at the Center of Applied Nanobiosciences. Parul has a B.S. in electrical engineering from India and M.S.Tech in Microelectronics system technology from ASU at the Polytechnic campus. She has

Infectious Diseases and Vaccinology at ASU's Biodesign Institute, and **Jamey Wetmore**, assistant professor at ASU's Consortium for Science, Policy & Outcomes. All cafés are 5:30-6:30 p.m. at the [Arizona Science Center](#).

**Mar 30, 2007:** Speaker Series: Architect **Ahmad Soueid**, internationally known designer of nanotechnology facilities.

**Apr 19-21, 2007:** CNS-ASU "All Hands Meeting." Tempe, AZ (*by invitation*).

**Apr 20, 2007:** Science Café: "Reductionism and Emergence in Science: New vs. Old Views of Nature and the Universe." **Michael Thorpe**, Director of the Center for Biological Physics in the Biodesign Institute, and **Manfred Laubichler**, Assistant Professor, Theoretical Biology at ASU.

**Apr 24, 2007:** "[Technological Enhancement of Humans? Perspectives of Researchers from Under-represented Populations](#)." Arizona State University. Contact 480-327-4893 or [email MGE](#) for more information.

**May 18, 2007:** Science Café: "Forbidding Science: Are There Things We Just Shouldn't Know?" CSPO Director **Dan Sarewitz** and **Roy Curtiss**, Director of the Center for Infectious Diseases and Vaccinology at ASU's Biodesign Institute.

## Presentations/Conferences:

**Jamey Wetmore** recently presented "Nanotechnology and Religion: Ambitions, Influence and Policy," as part of CNS-ASU's regular in-house Seminar Series. Wetmore examined the theological and spiritual implications of working and developing nanotechnologies. He is currently heading a project examining how religion is used to shape the political debates over nanotechnology.

CNS-ASU Director **Dave Guston** participated in the "Nanotechnology for Chemical and Biological Defense, 2030" workshop sponsored by the Department of Defense Chemical and Biological Defense Program, in Sante Fe, New Mexico Jan 30-Feb 1, 2007.

The National Nanotechnology Coordinating Office held a workshop on "Ethical Aspects of Nanotechnology," hosted by CNS-ASU in January. Political scientists, ethicists, physicians, bioengineers and others representing government, industry and non-

worked on studying the aging effects of lead-free solders for her master thesis, and is currently working on nano-scale patterning of biological media for microphenotyping of diseases. Parul has also worked as an IT consultant in India, and interned as a research assistant for Teach for America, Phoenix.

## Recent Speaker Abstracts

### January 19 - *Technology Assessment of Nanotechnology: Problems and Methods in Assessing Emerging Technologies*

Ulrich Fiedeler, Institute for Technology Assessment and Systems Analysis.

Fiedeler discussed the problems that technology assessment confronts when attempting to assess the societal impact of nanotechnology, given that the technology is defined by size instead of by other more specifying parameters. He presented a new approach called Vision Assessment, which aims at analyzing the debate on an emerging technology in a structured way. The presentation included a brief description of the methodological framing behind Vision Assessment.



[Fiedeler's PowerPoint presentation.](#) [Audio version of Fiedeler's presentation.](#)

### February 23 - *Constructive Technology Assessment: Supporting Reflexive Co-Evolution through Sociotechnical Scenarios*

Arie Rip, NanoNed Research Consortium.



Rip discussed two types of sociotechnical scenario exercises. In the first, possible futures resulting from the momentum emerging in specific domains of nanotechnology (e.g., lab-on-a-chip) are traced. Changes in science and industry structures are considered along with other societal aspects. Rip refers to this analysis as "concentric" scenarios, which are used in

strategy articulation workshops with a variety of actors. The second type of scenario features multi-level analysis explicitly, where the dynamics of nanoscale science and engineering (NSE) developments are coupled to different dynamics at other levels such as funding, firm strategies, regulation and political debate. The linkages between the levels are what shape further developments. These sociotechnical scenarios are less concentric than the first type and are relevant to political and civil society actors. Rip presented some early results for NSE in food packaging.

governmental organizations attended the two-day session. A report is forthcoming and will be available on the CNS-ASU website.

## Publications:

**Ira Bennett** and **Dan Sarawitz** published "Too Little, Too Late? - Research Policies on the Societal Implications of Nanotechnology in the United States" in the journal *Science as Culture*, Vol. 15 No. 4, 309-325. You'll find it in the [CNS-ASU library](#).

## NanoLinks:

[CNS-ASU website](#)

Social scientists at UT-Austin explore the dramatic impact of nanotechnology. [The Nano Future Website](#) showcases new technology.

Gregor Wolbring's column [The Choice is Yours](#) highlights scientific and technological advances and poses questions for readers to ponder. He believes engagement of the global community in the discourse of science and technology R&D is essential if negative consequences are to be avoided.

The Wuppertal Institute for Climate, Environment and Energy, along with several other European groups, has developed a pamphlet entitled, "[The Future of Nanotechnology: We Need to Talk](#)," which details the results of their work and is written in non-technical language for a broad audience.

The NSF Network for Computational Nanotechnology is developing [NanoHub](#), an online resource for the nano community, with shared cyber infrastructure to support it. The signature service is their online simulation, but seminars, tutorials, and courses are some of the most popular materials.

Interested in working with museums to bring nano science and technology to the public? See the guidebook written by **Professor Wendy Crone**, Director of the Interdisciplinary Education Group at the University of Wisconsin Materials Research Science and Engineering Center on Nanostructured Interfaces. [Download guidebook.](#)

[Rip's PowerPoint presentation.](#) [Audio version of Rip's presentation.](#)



The Center for Nanotechnology in Society at Arizona State University is part of the Consortium for Science, Policy & Outcomes (CSPO) in the College of Liberal Arts and Sciences. Its research, education and outreach activities are supported by the National Science Foundation under cooperative agreement #0531194.

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