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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.

NATIONAL SCIENCE FOUNDATION GRANT RENEWED FOR YEAR TWO!

Following submission of a year-end report and an exhaustive site visit review, NSF notified CNS-ASU in mid-September that the funding for year two of our five-year project has been officially approved. The project continues forward with activities in our Real Time Technology Assessment and Thematic Research Clusters involving over 80 personnel, including 30+ post-doctoral researchers, undergraduate and graduate students, and faculty located at ASU. You can see the entire site visit process by viewing your own copy of our Annual Report and Briefing Book: [NSF Site Visit pages on our website.](#)

2006-07 SPEAKER SERIES: "STUDYING THE FUTURE OF NANOTECHNOLOGY: ESTABLISHING EMPIRICAL AND CONCEPTUAL FOUNDATIONS"

All presentations are from 11 a.m. to 12:30 p.m. in the Biodesign Auditorium.

6 October. Rosalyn Berne. "Nano-ethics through the Writing of Science Fiction." Dr. Berne believes that the use of science fiction writing is potentially a powerful and illuminating pedagogical tool for engaging the multiple dimensions of nanotechnology ethics. In this talk she will explain the theoretical basis for that assertion, and describe the Nano-Science Fiction Writing Project she now directs, to engage global participation in the creative formulation and exploration of nanotechnology ethics. She is the author of *Nanotalk* (2005).



17 November. Griff Kundahl. Kundahl is Vice President Western Region and General Counsel, Nanobusiness Alliance. Kundahl advises the NanoBusiness Alliance on legal matters and developing business, partnerships and liaisons in the western United States. He is co-author of [The Handbook of Nanotechnology Business, Policy, and Intellectual Property Law](#) (Wiley & Sons, 2004) and is an Associate Editor of *Nanotechnology Law & Business*, a journal for attorneys, entrepreneurs and investors involved in small scale technologies.



15 December. Meyya Meyyappan. Meyyappan is NASA's Director and Senior Scientist at Ames' Center for Nanotechnology in Moffett Field, CA. He is in charge of all the technical aspects of his team's work, providing vision and determining what kind of projects to work on. As the senior scientist, he is also involved in technical work. Areas of focus include nanoelectronics and computing, developing nanotechnology-based sensors and detectors, and utilizing nanotechnology in gene sequencing. His project is primarily on nanoscale materials, primarily carbon nanotubes.



19 January 2007. Ulrich Fiedeler. Fiedeler is a member of the Institute for Technology Assessment and Systems Analysis (ITAS). He has studied the development of nanotechnology from a variety of prospective approaches including Vision Assessment and Roadmapping as a tool for Technology Assessment. Areas of focus include the role of Nanotechnology in Chemical Substitution, Social Issues of Neuronal Implants, and Naturalness and Neuronal Implants."



23 February 2007. Arie Rip. Arie Rip coordinates a program on TA and societal aspects of nanoscience and technologies in the research consortium NanoNed. Originally a chemist, he moved into chemistry and society, and science, technology and society studies more generally in Leiden University. He then was professor of science dynamics at the University of Amsterdam before joining University of Twente in 1987, as professor of philosophy of science and technology. He has developed the approach of constructive technology assessment, and also studies science policies and changes in knowledge production.



SCIENCE CAFÉ – “PREDICTING YOUR MEDICAL FUTURE ”

The first Science Café for the 2006-07 academic year was a full-house attendance at Changing Hands Bookstore in Tempe. The discussion topic was “Predicting Your Medical Future,” featuring Dr. **Stephen Johnston**, Director of the Center for Innovations in Medicine at the Biodesign Institute, and Dr. **Joan McGregor**, Director of the Bioethics Policy and Law Program at Arizona State University.



Johnston began by describing his research developing “Doc-in-a-Box,” a small instrument designed to reside in people’s homes that would be used to take their daily “biosignature.” Using a nano-needle to imperceptibly draw blood, the device would track minute fluctuations of proteins that signal the onset of illness long before the person experiences any physical symptoms. Johnston pointed out that of the current annual \$2 trillion spent on healthcare in the United States, 90% of these costs are associated with taking care of people who are already sick. Doc-in-a-Box would revolutionize the medical industry and potentially do away with the need for physicians as we know them. By being able to respond to illness literally before the person gets sick, the device is a pre-symptomatic approach that can potentially save trillions of healthcare dollars.

McGregor followed by pointing out some of the ethical, legal and economic issues associated with this type of technology. She acknowledged that early illness detection is a good approach that potentially empowers people to take responsibility and do the right things in terms of their personal health. And yet, a lot of public health and lifestyle information is available today that pre-symptomatically tells us how to reduce the risk of illness. Would Doc-in-a-Box eliminate this other useful information? If a person’s biosignature is illness-free, will that person become less motivated to continue with healthy habits? What if people discover they have an illness for which there are limited or no treatment options? How does this information affect the quality of their lives? There are major confidentiality

concerns associated with this technology: who owns this information and who has access to it? How can this information be secured? What if employers and insurance companies want to know this information? How do we ensure that “biological profiling” doesn’t become a condition for employment or insurance coverage? And how does this technology help the 40-50 million people in the U.S. who currently don’t have health insurance?

A lively question and answer session followed the presenters’ discussion.

Q: Why not focus on preventive healthcare, so that illness does not even have to become something picked up by Doc-in-a-Box? For example, obesity.

A: That’s a complicated question. Looking at obesity, some of it may have a genetic factor, some may be a virus, but a lot of it is due to bad habits. But if something tells you early on that you have red lights about your weight gain, then it’s a lot easier to do something about it when you are only one pound overweight rather than 100 pounds overweight. My feeling is that this information would be empowering to people. It can be used to make well people better, super-healthy.

The problem with preventive care right now is that nobody makes any money doing it. Businesses encourage it to prevent the costs associated with employee healthcare. But the overall system doesn’t encourage it because it can’t make money. Maybe if you had a collective health care system, then it might be in the overall system’s interest to be more preventive.

Q: I see Doc-in-a-Box as something that would be marketed to people who are financially secure. For people who use the Emergency Room as their primary care, would it really make a difference on a macro scale?

A: I would hope so. But, as a technologist, I can say we have something that will solve such-and-such problem and save X amount of money. But then, where will that X amount of money go? To the poor people who need health care? To build trains? I don’t know. Whether we use our saved money in a constructive way is beyond me.

No matter what the technology, we still have a problem with access. We know this already. But translating this awareness into providing people even basic care doesn’t seem to happen today.

Q: Does Doc-in-a-Box have any implications for the mental health field?

A: That’s a fascinating area. There’s information that infectious disease plays a role in mental health. Certainly the device would work for Alzheimer’s. But I don’t think we really know what else today. But the beauty is, we’d have historical information once more about the cause of mental illness is known.

Q: I was thinking about things like imperfection. Will we reach the point where we won’t have tolerance for variation, perceived “flaws?” Will people who take a “sick day” be looked at differently? How will we regard the “imperfect?”

A: Well, with this technology, there will be proof if you take a sick day!

There are reproductive rights groups today who worry about selecting out all sorts of “weaker” traits, and reaching the point where, if someone doesn’t want to participate, will society put pressure on you or look at you differently? Like, if you want to have a “non-genetically-selected “ child, how will the rest of society regard that child? How will that parent be regarded?

SPANISH SCIENCE CAFÉ 27 SEPTEMBER AT FRIENDLY HOUSE

Reaching out to Spanish-speakers in the valley, CNS-ASU created its first Spanish-language Science Café. The speaker was ASU chemist Ana Moore, whose research into artificial photosynthesis with other ASU researchers has the potential to create a new Silicon Valley in Arizona. The Science Café was held at 6 p.m. on 27 September at [Friendly House](#) in Phoenix.

TECHNOLOGICAL ENHANCEMENT CONFERENCE

Continuing our commitment to reach the widest possible audience, on **24 April 2007**, CNS-ASU and the Hispanic Research Center will co-sponsor “Technological Enhancement of Humans? Perspectives of Researchers From Underrepresented Populations,” a research conference for undergraduates.

Science, Technology, Engineering, and Mathematics (STEM) have widespread and profound interactions with the broader society, and yet STEM activities draw from a relatively narrow slice of that society. Within the U.S., practicing STEM professionals and those making policies or setting agendas for STEM represent a narrow slice of American society. Likewise, STEM activities – centered in the developed world – do not represent the full diversity of the global community in their planning, practice, or outcomes.

While new STEM technologies are emerging, they bring with them an opportunity to shape their planning, practice, and outcomes in novel ways. The potential for human performance enhancement through research in nanotechnology, biotechnology, information technology, and cognitive science present these opportunities now.

The research conference is an attempt to engage in such shaping. By bringing together undergraduate and graduate researchers (and their mentors) from across the country who are contributing perspectives on human enhancement that are not yet part of the dialogue, the conference will begin to create a network whose purpose is steering these converging technologies toward more representative and just outcomes.

Other co-sponsors include More Graduate Education at Mountain States Alliance (MGE@MSA) and the Western Alliance to Expand Student Opportunities (WAESO) both headquartered in the Hispanic Research Center at ASU, in collaboration with the NSEC/Center for Nanotechnology in Society at the University of California, Santa Barbara, the NanoSTS group at the University of South Carolina, and the nanotechnology-in-society group of Harvard University and the University of California, Los Angeles.

Call for Papers: Two categories of research of interest: 1) research in human enhancement-related STEM fields and are strongly influenced by the perspectives of underrepresented populations in their work; and 2) research on societal aspects of converging technologies and human enhancement with specific concerns about underrepresented perspectives. Student research paper presenters will also provide a poster presentation summary of their research papers for display during the conference.

Abstracts for research papers to be presented which address one or both of the above two general categories will be accepted and notifications will be made on a rolling basis with a final deadline for electronic submission of abstracts of January 24, 2007 and final notifications by January 31, 2007. The final deadline for electronic submission of completed papers is February 28, 2007.

More Information: Call 1-800-327-4893 (bilingual Spanish/English advisors will answer) or email MGE@ASU today for more information regarding how to submit an abstract, register for the conference, and to apply for a research paper presenter scholarship.

PUBLICATIONS

Torin Monahan's edited collection, *Surveillance and Security: Technological Politics and Power in Everyday Life*, was published by Routledge in August. Here's a link to more information about it: <http://www.publicsurveillance.com/surveillance-and-security.html> .

Jamey Wetmore, new faculty member working with CNS-ASU, published a book review of Rosalind Berne's *Nanotalk*, in *Science and Engineering Ethics*, 12(3) in July 2006.

Our new post-doctoral researcher, **Erik Fisher**, has had a paper accepted for publication in the *Bulletin of Science, Technology and Society*. The paper is called "Midstream Modulation of Technology: Governance from Within" and is co-authored with **Roop Mahajan** and **Carl Mitcham**, who are senior personnel on the CNS-ASU grant.

PRESENTATIONS/CONFERENCES

Jamey Wetmore presented a poster entitled, "Religious Forays into Nanotechnology Policy" at the Gordon Research Conference on Science & Technology Policy in Big Sky, Montana this past August. Jamey also participated in the "Standards for Nanotechnologies" Workshop hosted by Michigan State University.

The **1-5 November 2006** 4S Conference (Society for Social Studies of Science) will include significant participation by CNS-ASU researchers who are organizing and chairing sessions, serving as discussants, and presenting papers. Some of their activities include:

- A paper entitled, "An International Comparison of Recent Technology Assessment Approaches: Bypassing Collingridge" authored by **Rutger van Merkerk**, a CNS-ASU visiting scholar from Utrecht University, **David Guston**, CNS-ASU director, and **Ruud Smits**, Utrecht University
- A session called, "New Ethnographies of Nanotechnology," organized by **Dave Guston** and **Vivian Weil**, IIT. David Guston will chair the session which includes a paper by new CNS-ASU post-doc **Erik Fisher** entitled, "Reflecting on the Shape of Nanotechnology Research from Within."
- A paper entitled, "Brain Repair and Neural Enhancement" by **Jason Robert**, who leads the Human Enhancement, Identity and Biology research cluster of CNS-ASU in the session on "Optimizing Performance in the Face of Nature: Soldiers, Civilians, and Productivity Culture"
- Presentations by **Clark Miller**, Co-PI, and **Jamey Wetmore**

Also embedded in the conference will be a meeting of the International Nanotechnology and Society Network. To learn more about INSN, see their website: www.nanoandsociety.org.

UPCOMING NANO-RELATED EVENTS

- **30 October to 2 November 2006**. "[International Congress of Nanotechnology 2006](#)." San Francisco.
- **1-5 November 2006**. Society for Social Studies of Science (4S). Vancouver, BC, Canada. <http://www.4sonline.org/meeting.htm>.
- **12-16 March 2007**. "Nano & Giga Challenges in Electronics and Photonics." The organizers invite and welcome the support of sponsors and the help of volunteers in organizing the conference. If you are interested in helping the organization or know of student volunteers who may be interested in helping, please contact **Stephen Goodnick**, **Herb Finkelstein**, or **Anatoli Korkin**.
- **24 April 2007**. "Technological Enhancement of Humans? Perspectives of Researchers from Underrepresented Populations." Arizona State University.

NANOLINKS

- <http://cns.asu.edu/>
- For more on the Nano and Giga Conference: <http://www.AtomicScaleDesign.net/ngc2007>
- <http://insn.asu.edu>. International Nanotechnology and Society Network. You can subscribe to nanolist@asu.edu by contacting: Ira.Bennett@asu.edu.



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