

# National Science Foundation Societal Implications of Nanotechnology 2007 Principal Investigators' Meeting

16 March 2007

NSEC/Center for Nanotechnology in Society  
at Arizona State University

RTTA 3: Deliberation & Participation

1. Scenario Development
2. Innovation Space
3. Critical Corps
4. National Citizens' Technology Forum



The Center for  
Nanotechnology in Society  
ARIZONA STATE UNIVERSITY

Award No. # 0531194

David H. Guston, PI and Director

Co-PIs: Dan Sarewitz, Clark Miller, George Poste,  
Anne Schneider, and Marilyn Carlson

<http://cns.asu.edu>

## RTTA 3: Deliberation and Participation

To engage researchers  
and various publics in  
deliberative and  
participatory research  
activities and other  
forums

### RTTA 3/1 Scenario Development

- What are plausible nano-enabled futures?
- Deliberative exercise among experts

### RTTA 3/2 InnovationSpace

- How can we envision responsible nano products?
- User-centered research and design course

### RTTA 3/3 CriticalCorps

- What are the cultural resonances of NSE futures?
- Critical theory

### RTTA 3/4 National Citizens' Technology Forum

- How can the public be engaged in nano decision making?
- Six interlinked citizen's panels

# RTTA 3/1: Scenario Development

<http://cns.asu.edu/nanofutures/cspo/>



The Center for  
Nanotechnology in Society  
ARIZONA STATE UNIVERSITY

## Scenario Development Process:

1. **Scan literatures – scientific, popular science, science fictional**
2. **Brainstorm “naïve technical scenarios”**
3. **Draft and refine scenarios**
4. **Vet scenarios to local technical experts**
5. Vet illustrated scenarios to a variety of external groups via wiki site
6. *Compare/contrast responses of external groups*
7. *Subject responses to analysis through CriticalCorps and other CNS activities*
8. *Feed results into POV activities (POP and RV) and other DP activities (NCTF)*

## RTTA 3/1: Scenario Development

"If present trends in nanoscience and nanotechnology continue, most aspects of everyday life are subject to change."  
- National Science and Technology Council

Who controls your Nano Futures? Here are ten scenarios exploring possible futures of nanotechnology. Will they come true? Should they? Why or why not? Who gets to decide? Will it be you?

This site is your opportunity to interactively construct the future.

Click below to READ the scenarios and MODIFY them- DISCUSS them- and if you don't like ours, WRITE your own!

[Tattoo Remorse?](#)

[Tomorrow's Sponge?](#)

[Attack of the Autonomous Window Cleaners](#)

[Brain Drain](#)

[My Gulag](#)

[Surviving Brain Enhancement](#)

[DNA Sewer](#)

[Shake it Like a Can of Soup](#)

[Is Someone Tracking Your Every Step?](#)

[PanOpticon](#)

"Now nanotechnology had made nearly anything possible, and so the cultural role in deciding what should be done with it had become far more important than imagining what could be done with it."  
Neal Stephenson

"Every time I see an adult on a bicycle, I no longer despair for the future of the human race."  
H.G. Wells

# RTTA 3/1: Scenario Development

## 'Sleep'

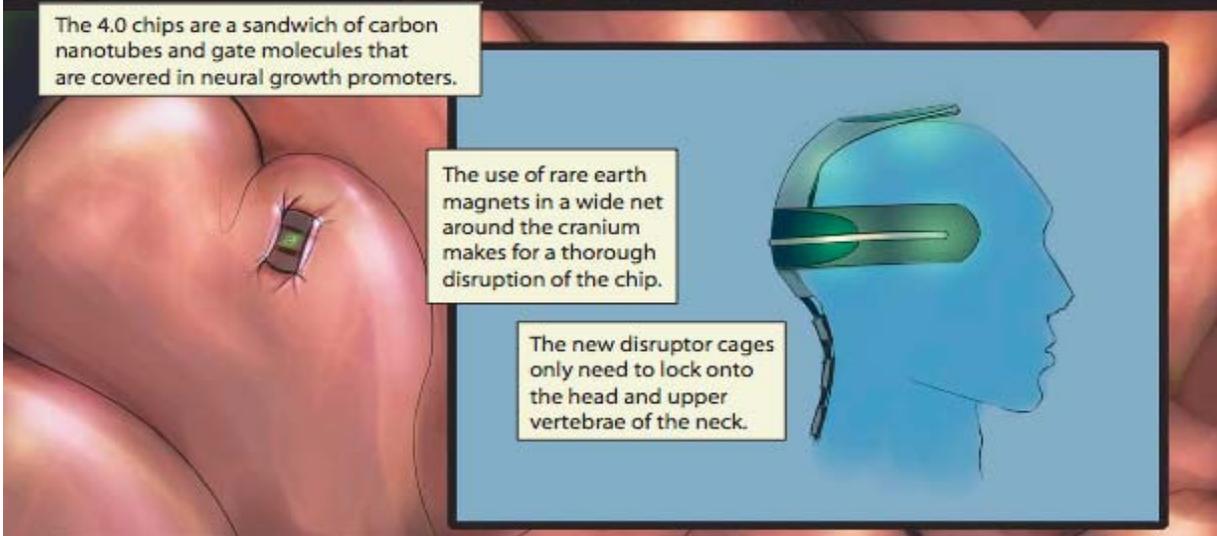
Cranial chip disruptors allows data transmission directly to the implantee's brain during resting time. The data feed does not disrupt or alter the way of 'sleep' for the implantee.

The 4.0 chips are a sandwich of carbon nanotubes and gate molecules that are covered in neural growth promoters.

The use of rare earth magnets in a wide net around the cranium makes for a thorough disruption of the chip.

The new disruptor cages only need to lock onto the head and upper vertebrae of the neck.

This data feed feature dramatically decreases the amount of time needed to assimilate data each day.



# RTTA 3/1: Scenario Development



Upon chip integration, the implantee will need to attend nine months of intensive classroom based courses, where they are taught new ways to think, process thoughts, and to categorize memories and data.



The cranial cage is light and comfortable during sleep. The disruption of the chip improves 'sleep', removing restlessness, annoying dream sequences, or sedative needs.



The implantee will just 'wake up' in the morning knowing what was streamed into their head from the previous night. The data feed does not disrupt or alter the 'sleep' of the implantee.



## RTTA 3/2: InnovationSpace

How to engage in  
responsible innovation  
of nanotechnologies?



The Center for  
Nanotechnology in Society  
ARIZONA STATE UNIVERSITY

- Undergraduate 10 credit practicum
- Cross-functional teams of
  - Industrial Design
  - Graphic Design
  - Engineering
  - Business
- Focused on Responsible Innovation
  - Is it desirable?
  - Is it possible?
  - Is it valuable?
  - Is it good?
- Three teams/projects
  - Electricitree
  - Current
  - Dialog

## RTTA 3/2: InnovationSpace

Research in the context  
of education



The Center for  
Nanotechnology in Society  
ARIZONA STATE UNIVERSITY

- IS Research Components
  - Rapid ethnographies of potential users
  - Road-mapping of technical milestones
- Honors Thesis on Dialog
  - potential use per IS plan
  - potential (mis)use under a health insurance mandate
  - potential (mis)use for workplace monitoring
  - full technical details including changes for other uses
  - discussion of technical precedents in health and workplace mandates



RTTA 3/3:  
CriticalCorps

What is the cultural  
significance of new  
nanotechnologies?

To apply perspectives of critical theory and cultural criticism to developed scenarios and IS products

Begins work after this semester

## RTTA 3/4: National Citizens' Technology Forum

How to engage publics  
in a deliberative and  
participatory activity of  
national scope?

## Six local sites

- ASU/Tempe
- Wisconsin/Madison
- GA Tech/Atlanta
- Colorado/Boulder
- UNH/Durham
- UCSB (planned)

## Research components

- Pilot national scale for comparison to other deliberative activities
- Local comparisons to other activities
- Pre/post tests of quality of deliberations