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# Nanotechnology & the Public: Duh, Yuck, and Wow!

by

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A partnership of the

Woodrow Wilson International Center for Scholars &  
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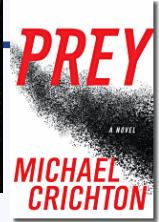
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# Nanotechnology in Poplar Culture



- Over 20 science fiction novels since 1982, including Michael Crichton's *Prey*.

- Variety of films including Spiderman II



- Console video games



Nanobreaker for PS2

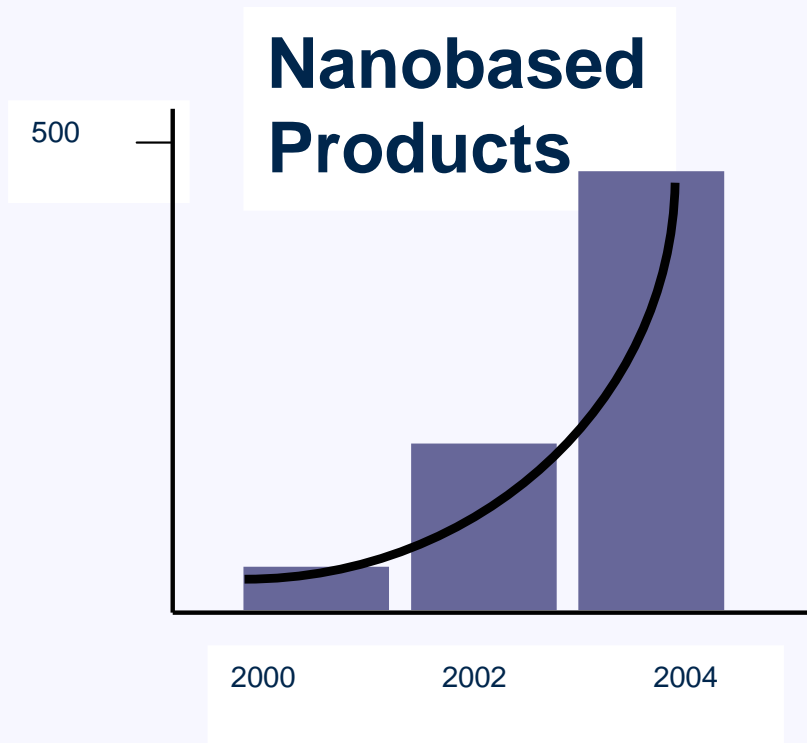
- Embedded messages in ads



- Public protests



# Nanotechnology Products on Market



An NSF-funded survey by *Small Times* magazine identified over 875 nanotech companies, with 475 products being produced by 215 of those companies. An internal EPA survey identified over 270 firms with products on the market.



# US Public Perceptions

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- 80 - 85% of public has heard “little” or “nothing” about nanotechnology
- Tend to see benefits more than risks
- Over 90% indicated “no” or “low” trust in both government and industry to manage any risks associated with nanotech (higher educational levels predicted lower trust levels)
- Most frequently mentioned concerns:
  - **Military uses, “evil doers”, weapons of mass destruction**
  - **Long term health effects**
  - **Environmental and ecosystem impacts**
  - **Loss of freedom and privacy**
  - **Regulator loss of control (rush to market)**
  - **Insulation of scientists and regulators from public concerns**

From: Macoubrie, J. “Nanotechnology: Public Concerns, Reasoning, and Trust in Government”



# UK Public Perceptions

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- 29% of UK public claim to have heard of nanotechnology
- Only 19 % can give some definition—accurate or not
- Of those offering a definition, 68% said it would make life better
- Most frequently mentioned concerns:
  - \* Loss of privacy
  - \* Cost of development to UK taxpayers
  - \* Scientists trying to “play God”

From: BMRB for Royal Society, 2004



- Most important potential benefits:
  - \* New, better ways to detect and treat disease (57%)
  - \* New, better ways to clean up environment (16%)
  - \* Increased national security and defense (12%)
  - \* Improvements to human and physical mental abilities (11%)
  - \* Cheaper, longer-lasting consumer products (4%)

From: Cobb, M. and Macoubrie, J., 2004

## ***Nanoscience and nanotechnologies: opportunities and uncertainties***

### Recommendation #4

Until more is known about environmental impacts of nanoparticles and nanotubes, we recommend that the release of manufactured nanoparticles and nanotubes into the environment be avoided as far as possible.

[www.nanotec.org.uk/finalReport.htm](http://www.nanotec.org.uk/finalReport.htm)

## Recommendation #5

Specifically, in relation to two main sources of current and potential releases of free nanoparticles and nanotubes to the environment we recommend:

- (ii) that the use of free (that is, not fixed in a matrix) manufactured nanoparticles in environmental applications such as remediation be prohibited until appropriate research has been undertaken and it can be demonstrated that the potential benefits outweigh the potential risks.





- **Make Your Case**
- **Make Friends**
- **Make Transparency & Responding to Public Concerns Job #1**
- **Make Sense**



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## Project on Emerging Nanotechnologies

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