

Nan Cafés



First Madison's Nan  Café - Tuesday July, 18 2006

Overview of issues raised by applications of Nanotechnology

by La Follette School of Public Affairs associate professor Clark Miller

Greetings!

The organizers of the Nano Cafés would like to sincerely thank all of you for attending our first Nano Café.

We would also especially like to thank Clark Miller for sharing his work with us, and Fair Trade Coffee for being such gracious hosts (please think of them next time you crave coffee).

You will find below basic information on nanotechnology and on the Nano Cafés, as well as a sign-up sheet and an evaluation form.

We would like as much feedback as possible about the event so we can make our future Nano Cafés interesting, engaging, accessible, and convenient.

We would appreciate any thoughts you have on the Nano Cafés and on Nanotechnology.

Best regards,

The Madison Nano Cafés Organizers

Nanotechnology

• What is Nanotechnology?

- **Nanotechnology** is an emerging field which involves the understanding, manufacture and manipulation of materials at the molecular or atomic level.
- Nanoparticles are so small that they can't be observed without special equipment. **Nano** means "dwarf"... but also "one billionth". **A nanometer is one billionth of a meter.** That puts us on the scale of atoms, but how small is that?

A 'nanometer' is:

- 1/10 of the thickness of metal film on a packet of potato chips
- 1/80,000 the diameter of an average human hair

A gallon of paint could cover the entire UW-Madison campus 1 nanometer thick.

(Area of campus = 3.77 km². 3770000 m² x 1 nm = 0.00377 m³ = 0.996 gallon)

- Nanotechnology will enable scientists and industries to make **new shapes, devices, machines, and products.**

• What kind of applications does nanotechnology enable?

- Nanotechnology involves a broad range of disciplines and is expected to create potentially revolutionary advances for the **computer, medical, military, energy, agriculture and even textile industries.**
- **Nanotechnology applications are already in everyday life, for example:**
 - stain-resistant clothes
 - stronger, lighter baseball bats or aircraft materials
 - cosmetics and sunscreens
 - self-cleaning windows
 - faster and more integrated circuits
 - smell-resistant, anti-microbial and anti-bacterial socks and athletic or military attire
 - clear insulation
 - car wax whose compounds are small enough to fill even the tiniest imperfections in a paint to restore that "new car look"
- **Tomorrow** nanotechnology may help create enhanced cancer treatments, thanks to new tumor-targeting medicines, as well as sensors to detect explosives, chemical and biological agents. It may also improve energy storage, water desalination, water decontamination, and many other applications.

• Nanotechnology offers incredible promise and possible dangers

- By operating at the nanoscale, researchers can extract **novel behaviors** from familiar materials because they are working with the building blocks of biology and chemistry. Nanotechnology has **great potential** to transform many diverse areas of technology.
- **However, uncontrolled, unwise or malicious use could seriously threaten humans and the environment.** Nanoparticles, given their size, if spread out in the environment or absorbed in the body via the lungs, skin or digestive system, may have toxic consequences.
- Find out more at www.nanocafes.org/nanoresources

The Nano Cafés

- **Where does the idea of Nano Cafés come from?**

- The group organizing these events formed as a result of a **Consensus Conference on Nanotechnology** organized at the University of Wisconsin - **Madison** in the **spring of 2005**.
- **Afterwards, several members of the citizen panel wanted to continue engaging with scientists and educating the public about research on nanotechnology.** A professor involved in last spring's conference suggested the Science Café idea, having attended one in Europe.

- **Why do Nano Cafés?**

- Although still largely unknown by lay people, **nanotechnology may soon affect everybody's life.** This emerging field offers incredible promise and possible dangers.
- Average citizens don't always know how much science affects their lives, and are rarely asked what they think about it. **The Nano Cafés will give citizens access to the normally somewhat mysterious realm of science research.**

- **What happens at a Nano Café?**

- The Nano Café provides a **casual atmosphere** in which people who don't know a lot about nanotechnology can **listen to experts, ask questions and share concerns.**
- UW-Madison experts will explain their work, answer questions and address concerns from members of the public.
- The focus of the event is definitely on the **questions of those in attendance**, most of whom are non-scientists. **No science background is required!**
- We want The Nano Cafés to be as **democratic and participative** as possible : at each Nano Café, we will ask the attendees to point out the themes they want to hear more about during the next Nano Cafés. You are also invited to **join us and help organize future Nano Cafés.**

- **Who sponsors the Nano Cafés?**

The Nano Cafés are sponsored by:

- the Citizens' Coalition on Nanotechnology
- the UW–Madison Nanoscale Science and Engineering Center

- **How can I find out more about the Nano Cafés?**

- Go to our website: www.nanocafes.org
- Send us an email: nano.cafes@gmail.com
- Call Maria Powell, 608-240-1485

Sign-up Sheet

Please give us your contact information if you would like to be informed of upcoming Nano Cafés.

We commit not to pass your contact information on to any third party.

Please Write Clearly:

- **Name:**
- **Address:**
- **Phone and/or email:**
- **Would you like to receive emails from the Nano Cafés Organization Team regarding our events?**
- **Would you like to be involved in helping organize future Nano Cafés?**

Evaluation form *(optional)*

You may respond to nano.cafes@gmail.com

- **How did you find out about the Nano Cafés? Via:**

- | | | |
|--|---|---|
| <input type="checkbox"/> poster / flyer | <input type="checkbox"/> newspaper - specify: | <input type="checkbox"/> TV - specify: |
| <input type="checkbox"/> Nano Café Organizer | <input type="checkbox"/> radio - specify: | <input type="checkbox"/> other - specify: |

- **What did you think of...**

- the venue?
- the format?
- the topic?
- the speaker?

- **Would you attend another Nano Café?**

- **Which themes / topics do you want to hear more about at subsequent Nano Cafés ?**

- **Do you have an expert to recommend ?**

- **Do you have question(s) to ask?**