join host BOB MCDONALD

QUIRKS&QUARKS

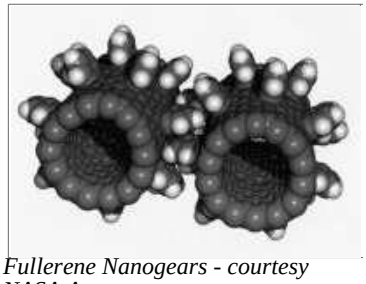
MAIN
HOST
PAST SHOWS
CONTACT US

Quirks & Quarks September 13, 2003

Audio Files:
Real Audio Files: Listen in real time or download it here.
[Available Saturday 2 hours after broadcast].

Nanotechnology - One smaller step

Listen to an mp3 of this topic or download the Ogg file. (what's ogg?)



Fullerene Nanogears - courtesy NASA Ames

Nanotechnology is the science of the very small - devices constructed one molecule at a time. Today we examine the current state of nanotechnology, it's future path and some concerns people have over this emerging and revolutionary field.

Dr. Jillian Buriak is a professor of chemistry at the University of Alberta, and senior research officer at the National Institute of Nanotechnology. She explains that nanotechnology obeys different rules than we are used to. Once materials and objects get sufficiently tiny, they behave according to the rules of the quantum world. Nanotechnolgy has been a science of the future for a long time, but in simple ways. According to **Dr. Dan Wayner**, the acting director of the National Institute of Nanotechnology in Edmonton, the most common use of nanotechnology today is in cometics, where tiny particles are often used for various purposes. Carbon nanotubes are already being used to make extremely strong composite materials. **Dr. Ted Sargent**, a professor in the department of Computer and Electrical Engineering at the University of Toronto, is working on nanotech electronic devices - quantum dots that could replace transistors by tiny boxes holding a single electron.

There is concern about nanotechnology in the future, however. Recently **Bill Joy**, the co-founder of Sun Microsystems, has raised the spectre of more advanced nanodevices gaining the ability to reproduce like bacteria, but much more efficiently, and eventually taking over the entire world. This concern has been taken up by activists including Charles, the Prince of Wales. Nanotech researchers, however, think that danger is unrealistic, and for the moment, we're far from having the technological ability to even create such a device. If it's a fear, they say, it's a fear for the future.

Related Links

- National Research Council's Nanotechnology Page
- Nanotech at the Zyvex Company
- US Government's National Nanotechnology Initiative
- UK Institute of Nanotechnology
- Dr. Ted Sargent's Web Page
- Engines of Creation - The dark side of Nanotechnology
- Bill Joy's concerns - Wired Magazine

Baboon Fathers

Listen to an mp3 of this topic or download the Ogg file. (what's ogg?)

Amboseli Baboons - courtesy Joan Silk

Baboon males often dote on baboon infants, protecting and defending them. Baboons however, are very promiscuous, so identity of infant's fathers could be a problem - the mother probably mated with several males. **Dr. Susan Alberts**, a biologist at Duke University and a researcher in the Amboseli Baboon Research Project, was interested in whether the males are favouring their own children, or if they have some ulterior motive for their attentions to infants. Her DNA examination of baboon feces proved that baboon males are indeed favoring their own infants, and so must have some way of identifying which infants are their own.

Related Links

- Amboseli Baboon Research Project
- Dr. Alberts' research
- Duke University News Service - includes video

Big Bang or Black Hole Burp

Listen to an mp3 of this topic or download the Ogg file. (what's ogg?)

Black Hole or Universe? Courtesy NASA

Dr Blake Temple, a mathematician at the University of California at Davis, has a new idea about the beginning of the universe. He doesn't dispute the big bang theory. He thinks, however, that the big bang happened inside a black hole -- a black hole that's actually running in reverse. We're still in that black hole, but in the future, we'll emerge from the event horizon and join the rest of the universe. It sounds like an interesting trip.

Related Links

- PNAS Online - Shock Wave Cosmology Inside a Black Hole

Dr. Edward Teller, 1908-2003

Listen to an mp3 of this topic or download the Ogg file. (what's ogg?)

Dr. Teller

Dr Edward Teller, one of the most controversial scientists of the 20th century, died this week at the age of 95. Dr. Teller is popularly known as the father of the Hydrogen or fusion bomb, and was also involved in the Manhatten project and the development of the fission bomb. We discuss his life and achievements with **Dr. Gregg Herken**, historian at the University of California at Merced and author of *Brotherhood of the Bomb : The Tangled Lives and Loyalties of Robert Oppenheimer, Ernest Lawrence and Edward Teller*

Related Links

- Dr. Herken's book
- Dr. Teller's biography at Lawrence Livermore Laboratory

[last week][next week]

BACK TO TOP