

# Nano: the Next Dimension Nanotechnology

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*Nano: the Next Dimension* is a short television documentary featuring several leading physical scientists discussing nanotechnology and its applications – amongst these are Nobel laureates Jean-Marie Lehn and Sir Harry Kroto.

The film employs stunning graphics to give a good mental picture of the nano-scale, and descriptions of the quantum tunnelling effect and Werner Heisenberg's Uncertainty Principle. The ways in which European nanotechnology research could be used are discussed: these include using nano-tubes as ballistic conductors for the replacement of copper wires, increased memory capacity for computers, and applications in biological systems. The film includes a good video clip of the formation of nano-tubes. Other experiments show the application of nano-particles for scratch-proof surface protection, as a hydrophobic surface of ceramic sinks, and to make walls graffiti-proof. The printing of music CDs onto flexible plastic polymers and the manufacture of molecular robots are also touched upon.

The film also features the application of nanotechnology to AIDS research. In an early AIDS screening method, negatively charged HIV antibodies were attracted to positively charged iron-based nano-particles. Any HIV particles were attracted to the antibodies, and since the iron-based nano-particles could be magnetised, both the particles and the virus could be removed using a magnetic field.

*Nano: the Next Dimension* is available in DVD format but only in English.

*Nanotechnology* is a short film aimed more specifically at younger students than its predecessor *Nano: the Next Dimension*. The film employs many of the same stunning graphics and examples as its predecessor, but delivers the information using a pair of school students who are preparing a presentation on nanotechnology. To help the students, a couple of atoms are magnified a billion times to lead the youngsters through the marvels of nanotechnology. The film features the students interviewing several scientists in the laboratory to discuss applications of nanotechnology, rather than using a 'talking heads' approach.

*Nanotechnology* is available on DVD in twenty languages (either through subtitling or dubbing).

The overall aim of both films is to increase awareness of nanotechnology and the European research in this field. In this, they succeed. Science teachers wishing to update themselves on this area will be able to make good use of these DVDs. Whether the films would be used in schools in which science is traditionally taught is much harder to say. *Nanotechnology* could be used as part of a science careers programme, but unfortunately all the scientists featured are male and so the film presents fewer role models for young women.

The superb graphics on the DVDs could be used in lessons on structure and bonding or, for older students, as

part of a lesson on electron microscopy. Due to the multilingual nature of the *Nanotechnology* DVD, it may be a useful resource for science teachers who do cross-curricular work.

## Details

### *Nano: the Next Dimension*

Commissioned by: The European Commission

Produced by: Ex-Nihilo, France

Publication year: 2002

### *Nanotechnology*

Commissioned by: The Research Directorate-General of the European Commission

Produced by: Wajnbrose Productions

Publication year: 2003

## Ordering

Both films are downloadable or available free of charge as DVDs, along with a brochure, *Nanotechnology: Innovation for tomorrow's world* (3.8 MB), and can be ordered online at: [www.cordis.lu/nanotechnology/src/pressroom\\_films.htm](http://www.cordis.lu/nanotechnology/src/pressroom_films.htm)

## Resources

The European Commission on Nanotechnology homepage is: [www.cordis.lu/nanotechnology/](http://www.cordis.lu/nanotechnology/)

The commentary from *Nano: the Next Dimension* is available at: [http://europa.eu.int/comm/research/conferences/2002/pdf/press-packs/1-3-nano-new-dimension-script\\_en.pdf](http://europa.eu.int/comm/research/conferences/2002/pdf/press-packs/1-3-nano-new-dimension-script_en.pdf)

