Nanotechnology under the microscope

August 17 2005

It has been hailed by some as a revolutionary science — and by others as a threat to mankind.
The technology which spawned fears of unstoppable 'grey goo' taking over the planet and inspired the bestselling Michael Crichton novel Prey continues to be one of the most controversial fields in modern science.

But what is the truth behind nanotechnology and what is its real potential to affect the way we live in the coming decades? This question, and others, will be the subject of a ground-breaking public debate at The University of Nottingham later this month.

Eric Drexler, formerly of the Foresight Institute and now Chief Technical Adviser with Nanorex, was responsible for the concept that nanotechnology could lead to self-replicating 'nanobots' and 'grey goo' with the potential to threaten life as we know it.

His claims – building from initial work in 1981 — have generated years of heated debate with researchers who have very different ideas about the potential of science at the scale of thousandths of a millimetre. Dr. Drexler's concept of nanotechnology is now generally referred to as 'molecular manufacturing'.

For the first time, key members of the US molecular manufacturing community are coming to the UK this month to debate the issues with British academics.

On the other side of the public debate will be Professor Richard Jones,

of the University of Sheffield. Professor Jones is the author of a popular science book on nanotechnology, Soft Machines, and takes a more sceptical line on the potential of Drexler's version of nanotechnology. His view is that materials behave differently at the nanoscale compared to familiar human scales — and this means nanotech may be more like biology than conventional engineering.

Also taking part will be Professor Saul Tendler, head of The University of Nottingham's School of Pharmacy, who was a member of the panel that produced an influential report on nanotechnologies published by the Royal Society and the Royal Academy of Engineering last summer.

The molecular manufacturing community will be represented by Dr J Storrs Hall, chief scientist of Nanorex Inc., and author of a recently published book on Drexlerian nanotechnology entitled Nanofuture; and materials scientist David Forrest, president of the Institute of Molecular Manufacturing (IMM) and Senior Fellow at the Foresight Institute.

The IMM is a foundation formed in 1991 to conduct, support, and promote research on molecular manufacturing. Dr. Forrest participated in the recent review of the US National Nanotechnology Initiative organised by the National Academy of Sciences.

Another participant in the debate will be Jack Stilgoe, from the DEMOS thinktank, an investigator on an ESRC-funded project on public engagement with nanotechnology. The debate will be chaired by Faye Scott from Involve, a thinktank recently tasked by the government's Office of Science and Technology to set up a Nanotechnology Engagement Group.

The debate, on August 24, has the theme: 'Nanotechnology: Radical new science or plus ca change…?'. It is free and open to the public, and takes place at 4.30pm in theatre B1 in the Physics and Maths building on the

main University Park campus.

Professor Philip Moriarty, of the University's School of Physics and Astronomy, said: “I've chosen this theme so as to highlight the gulf that exists between the perception of the potential of nanotechnology as held by the majority of the scientific community and the vision of nanobots and nanofactories which usually accompanies most stories in the media regarding nanotechnology.”

The debate is part of the UK Summer School in Surface Science, being held at the University from August 21-26. Funded by the Engineering and Physical Sciences Research Council, the Summer School is aimed primarily at science postgraduates but the nanotechnology debate is aimed at a broader public audience.

Around 30 internationally renowned speakers will be taking part over the five-day event, which has attracted more than 80 postgraduates from the UK and Europe.

Professor Moriarty is chairman of the organising committee for the Summer School. The University of Cambridge, UCL and Imperial College are also involved in the organising committee.

Earlier this year it was announced that Nottingham would receive a £3.5 million grant to set up a new state-of-the-art research centre in the city.

The Nottingham Micro Nano Technology (MNT) Centre will be an advanced manufacturing facility to help companies develop revolutionary new products and services at a scale of thousandths of a millimetre.

The grant will provide open access for companies to cutting-edge facilities designed to help bring nanotechnology products and services to

the market — particularly in healthcare, engineering and information communications technology (ICT).

Link: University of Nottingham