21st Century Medical Diagnosis and Treatment: How the Convergence of Nanotech and Biotech is Changing the Way We View Disease

with Tim Harper, serial entrepreneur and investor in emerging technologies

Thursday, May 31, 2012, 10:30 - 11:30 am
ICTAS Room 310, Stanger Street

Medicine has historically progressed in large steps rather than small linear increments; from Paracelsus' realisation that chemical remedies could cure illness, to the understanding of the pathologic basis of disease and the discovery of antibiotics. The convergence of life sciences and nanotechnologies has the potential to be the greatest leap forward yet, driven by the understanding of how nature works on the nanoscale, and underpinned by information technology which allows us to acquire and process large amounts of data.

Technology is advancing on all fronts, from point of care diagnostics with the potential to be cheap enough to make mass screening and early detection of disease possible, through to highly targeted therapeutics with drugs being delivered and released only where needed. With innovation drying up in 'big pharma', opportunities abound for start ups in nanomedicine, but progress to market can be slow, with technical and regulatory hurdles favouring some applications over others.

Finally, with early detection of disease turning many previously fatal conditions into chronic ones, can governments and health care providers use technology to lower healthcare costs, while dealing with the consequences of increasing lifespans?

Tim Harper is a serial entrepreneur and investor in emerging technologies. A former engineer with the European Space Agency's R&D centre (ESTEC) in Nordwijk, the Netherlands. Tim has, in the course of his career:

- Launched the first atomic force microscope to ever fly in space in order to analyse comet dust
- Developed novel forms of superconducting X-ray detectors for astronomical missions
- Founded Cientifica, the worlds most respected nanotechnology information and forecasting company
- Written and commented on technology since 1998, moving from print publications through email newsletters to blogs and has gained several thousand followers on Twitter
- Co-founded Nanosight and brought an entirely new scientific instrument to market and profitability
- Organised the worlds first nanotechnology investing conference in Seville in 1999 and ran the successful World Nanoeconomic Congress on four continents
- Founded the European NanoBusiness Association in 2001
- Given hundreds of keynote and invited talks on nanotechnology and investment strategies throughout the world
- Advised governments on technology strategy ranging from Singapore to Saudi Arabia, and from the European Commission to the World Economic Forum
- Lived and ran businesses in the UK, Netherlands, United States and Spain
- Advised on and participated in technology investment and acquisitions totalling over a billion Euros in Singapore, India, Europe and the United States

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