Interim National Nanotechnology Coordination Office Director, Lloyd Whitman, discusses the evolution of the National Nanotechnology Initiative since its inception in 2000. He outlines how the Initiative is driving nanoscience forward and its key challenges and achievements.

Communication is becoming an integral part of scientific practice. As the concept of research impact moves higher up the agendas of funding bodies and research institutes, scientists are increasingly aware of the importance of getting their message out to as broad an audience as possible. This can be a daunting prospect, but fortunately the avenues through which science can be communicated are more diverse than ever before. At the British Science Association’s Annual Science Communication Conference, a huge array of communicators came together to share their ideas and hear about some of the most inventive methods currently being used to bring science to the masses.

What has been your experience of technology transfer, and what advice would you give researchers interested in commercialising their innovations?

Assistant Professor Philippe Smet and Professor Dirk Poelman (Ghent University, Belgium)

Until a few years ago, technology transfer was not really an issue in our research group, where at that time only fundamental research was performed. However, more recently, a technology transfer policy was set up at Ghent University and a dedicated technology developer in the field of photonics was assigned to us. Hence, we started to run projects in collaboration with industrial partners. One of the key elements is certainly the need to identify potentially industrially relevant innovations at an early stage and contact support people with expertise in the field of technology transfer well before finishing the scientific paper describing the findings.

Schematic illustration of optically induced magnetic dipole response of subwavelength silicon nanoparticles in the visible spectrum.

The skutterudite unit cell showing the red, rattling atoms and the internal square rings of atoms.

Scanning tunnelling microscopy measurements taken at the surface of a ferromagnet/superconductor bilayer composed of a 30 nm film of lead as superconductor and a thin film of cobalt/palladium multilayer as ferromagnetic material.

Schematic illustration of a ferromagnet/superconductor bilayer.
BATTERIES ON THE BRAIN

International Innovation speaks to Dr Haitao Huang about his latest project, which aims to develop aqueous lithium batteries using novel nanomaterials. His research group, based at Hong Kong Polytechnic University, is creating novel high-performance, flexible aqueous rechargeable batteries based on anodic compound electrodes.

ALLIANCE FOR MATERIALS

The Alliance started in 2010 with the goal of providing European Technology Platforms with a unified voice on crucial materials science topics. Chairman Dr Marco Falzetti discusses its formation and how its member organisations have worked together to advance the field as a whole.

NOVEL NANOMEDICINES

Investigators from the University of Queensland, Australia, led by Dr Kristofer Thurecht, are developing innovative nanomaterials for molecular imaging and drug delivery. He explains the benefits of combining different imaging techniques, the applications for cancer treatment and his vision for the future of nanomedicine.

PROGRESSIVE PROCEDURES

As a rapidly progressing field of science, nanotechnology hails important energy, health and environmental benefits for the future. Drs York Smith and Swomitra Mohanty, and Professor Manoranjan Misra from the University of Utah and Nanosynth Materials and Sensors, Inc in Salt Lake City, USA, explain how their research is forging new frontiers and providing insights into synthesising nanotubes for electronic and medical applications.

Cross-Continent Collaboration

Dr Christophe Martin and Professor Rajendra K Bordia are working across continents to design porous ceramics for electrochemical applications. Battling the opposition between functionality and strength, their research project OptiMA_SOFC could yield new fuel cells, batteries and biomedical tools.

CROSS-CONTINENT COLLABORATION

Scanning tunnelling microscopy pioneer and co-founder of the technology company Tiptek, Professor Joseph W Lyding, discusses his work on 2D materials and carbon nanotubes. The Lyding Research Group within the University of Illinois, USA, aims to uncover atomistic-level information and create innovative methods to improve nanotechnology systems.

CARBON NANOCREATIONS