



Victorian Government Parliamentary Secretary for Education, Mrs Inga Peulich MLC is surrounded by students from Dromana Secondary College in the biology and cleanroom laboratories at MCN. The students were joined by science teacher Jason Walsh (far right) and hosted by ANFF CEO Rosie Hicks (front).

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Encouraging the Next Generation of Nanoscientists

An important role for MCN is to inspire young minds and make them aware of the many opportunities for a career in science and technology. In the spirit of this, MCN has entered into a partnership with Dromana Secondary College to allow students to visit the facility and gain an understanding of cleanroom operations and the professional scientific world. The partnership was formally announced by the Victorian Parliamentary Secretary for Education, Inga Peulich MLC who accompanied the students on their visit, participated in a nanotechnology seminar provided for the students by MCN Science Director Dr Gareth Moorhead and toured the facilities with the MCN Managing Director, Dwayne Kirk.

Ms Peulich was eager to highlight the benefits of introducing Dromana's students to professional level scientific research. "Visiting this internationally significant research facility helps these students develop a love of science that could turn into a career," she said. These sentiments were echoed by Jason Walsh, science teacher at Dromana, who said that "by offering this opportunity to senior students who already have an interest in science we hope to encourage them to continue their studies."

Following Ms. Peulich's speech, she and the visiting Dromana students were treated to a tour of the facility. The students were able to enter the Class 100 and Class 10,000 cleanrooms, giving them a chance to experience an advanced laboratory environment. The students were also very keen on exploring MCN's fabrication and characterisation capabilities, asking plenty of questions and extending the visit well past its expected time. Rosie Hicks, CEO of the Australian National Fabrication Facility (ANFF) said "this really demonstrates the value of the partnership with Dromana College - so rarely would secondary students get the opportunity to ask questions directly to professional scientific researchers, let alone have access to a world class facility."

Deakin Opens New Nanotech Facility

Deakin University, a stakeholder institution and partner of MCN opened its new nanotechnology research facility at its campus in Waurn Ponds last month. In association with the ARC Centre of Excellence for Functional Nanomaterials, Deakin's new facility will focus on cutting edge nanotechnology research and applications, aiming to solve problems in energy storage, environmental protection, new advanced nanomaterials, and health and medical issues. Industry, academic and CSIRO collaborators were on hand to discuss recent advances and concepts in these areas, and to congratulate Professor Ian Chen on establishment of the new facilities.



The head of nanotechnology research at Deakin University, Professor Ian Chen was accompanied by the Deputy Vice-Chancellor (Research) Professor Lee Astheimer and MCN Managing Director Dwayne Kirk during the launch of Deakin's nanotechnology laboratories.

Professor Lord Alec Broers Visits MCN

As part of his recent visit to Australia, former Vice Chancellor of Cambridge University and alumnus of the University of Melbourne, Professor Lord Alec Broers visited the MCN on June 23. After a brief tour of the facility, Lord Broers enjoyed morning tea with MCN staff and collaborators. A round-table discussion was held to explore areas of research undertaken at the centre. All participants agreed this was a unique opportunity to engage in stimulating discussion with such an accomplished individual, who is widely credited as one of the founders of modern nanotechnology. Lord Broers showed strong interest in the research being performed by MCN users, and a wide range of topics was discussed including water purification, nanotube-based drug delivery, organic photovoltaics, polymer electronics, microfluidics and more.

Lord Broers discussed some of the areas in which he is currently involved including bio-nano interfaces and nanomedicine. Of particular note for Lord Broers was the node-based organisation of the ANFF (of which MCN is the Victorian node), in contrast to his own experiences in decades past when numerous nanotechnology research organisations in the UK had no unified strategy. Lord Broers went on to present a seminar at Monash that afternoon in which he referred to MCN as a "marvellous laboratory with very exciting things going on."

Technology Fellowships To Be Announced

As part of its commitment to supporting nanoscience research, the MCN will be awarding Technology Fellowships to prominent Victorian researchers. Over the next year, these fellows and their teams will have onsite residency, full access to the MCN instruments and facilities, and the opportunity to contribute to the centre's future direction. Successful applicants will be announced on the MCN website on Friday July 15th.

MCN On Film

It's not just researchers that want to visit the MCN. Recently the MCN central facility has been host to several film & TV crews, filming pieces on nanotechnology research and education.

Foxtel Miniseries

It is not yet time for a mini-series on nanotechnology research, but later this month MCN will be used as a filming location for a new mini-series being created for the Family Movie Channel called "Conspiracy 365". According to recent announcements, this \$13M production is one of the biggest projects ever undertaken in Australia for the subscription television market. The corridors, office space and laboratories at MCN will make an appearance in the series, which premieres in January 2012.

Catalyst (ABC)

The team behind the ABC science show Catalyst have filmed two separate interviews with Associate Professor Leslie Yeo and Professor James Friend from Monash University. Later this month, Graham Phillips will film the hosting segments for an episode dedicated to micro/nano science in medicine, to be aired on Thursday 25th August.

DIISR Public Education Video on Nanotechnology

The Department of Innovation, Industry, Science and Research (DIISR) chose the MCN to include in their public education video about nanotechnology, to help explain the basic science of the field and its applications to real world solutions.



The MCN team now comprises (L to R) Manoj Sridhar, Doug Mair, Dwayne Kirk, Sasi Kandasamy, Rosie Hicks, Matteo Altissimo, Varsha Lal, Gareth Moorhead, Paul Spizzirri and Zoran Vasic. Absent was Vanessa Peters.

New Faces at MCN

Dr Dwayne Kirk - Managing Director

Joining in June 2011, Dwayne has a background in management, business administration, research commercialisation, strategy and biotech R&D. He holds a Doctorate in Biology from Arizona State University, and since joining Monash in 2006 has been engaged in several strategic projects including assembly and leadership of a major infrastructure and collaboration program in biomedical imaging.

Dr Paul Spizzirri - Facility Manager

Also joining in June 2011, Paul has over 20 years of laboratory experience, including silicon processing technologies applied to the fabrication of a solid state quantum computer. Paul is responsible for many of the operational activities of the MCN including training and health and safety matters.

Dr Gareth Moorhead - Science Director

Gareth is a physicist with the CSIRO Division of Materials Science and Engineering and has been appointed to the part-time role of Science Director. His research interests are in the area of radiation detector systems, notably for synchrotron x-ray fluorescence microscopy. He is passionately interested in the translation of science and technology to benefit Australian society, industry and the environment.

Varsha Lal - Biology Laboratory Manager

Varsha holds a Bachelor of Science and Bachelor of Engineering (Honours) in Biomedical Engineering from Flinders University. She previously worked at the Mental Health Research Institute as lab manager for the synaptic neurobiology laboratory.

Announcements

USAF/NASA/NIH Delegation – Public Lecture

Later this month, MCN will play host to a group of world-leading scientists from NASA, the US Air Force Office of Scientific Research and the US National Cancer Institute.

A Public lecture is scheduled for **Tuesday July 19th** at MCN at 4.30pm – 5.30pm, to be followed by drinks. Speakers and topics will be:

“Thermoelectric Power Generation”

Dr Ali Sayir

Case Western Reserve University and NASA-Glenn Research Centre

“Convergence of Physical Sciences and Nanotechnology to Bridge Biomedical Applications in Cancer”

Dr Larry Nagahara

Acting Director, Office of Physical Sciences – Oncology, Center for Strategic Scientific Initiatives, Office of the Director, National Cancer Institute

Interested attendees should RSVP to: Warren McKenzie, Business Development Manager, ANFF on 0400 059 509.

New Equipment

These new fabrication and characterisation capabilities have recently arrived at MCN:

- Objet 3D printer
- Protein Arrayer/Spotter
- Nikon Total Internal Reflectance Fluorescence (TIRF) Microscope
- Zeta Potential Analyser
- Digital Matrix Electroformer
- Cambridge Atomic Layer Deposition
- Multicomponent Integration and Screening Lab
- Thermal Furnace

ARC LIEF Success

The MCN is one of the recipients of a multi-institutional grant from the Australian Research Council (ARC), partnering with the University of Melbourne, Monash University and CSIRO, to create the **Victorian Integrated Plasmonics Facility**. Plasmonics utilizes the unique optical properties of metals at the nanoscale and has the potential to revolutionize fields such as sensing, bioassays and optical communications. The VIPF will be a state of the art centre for the design and application of metal nanostructures in a range of applications by biologists, chemists, physicists and engineers. Led by Professor Paul Mulvaney from the University of Melbourne, and Professor Alison Funston from Monash University, the facility will be fabricating plasmonic structures and conducting research that will include determining the behaviour of light in small structures (i.e. less than one wavelength). Dr Matteo Altissimo will be MCN's representative in this collaboration.

Collaboration in Droplet Interactions

One of MCN's instrument managers, Douglas Mair, recently contributed to a paper published in The Journal of Physical Chemistry Letters, titled *Combined AFM-Confocal Microscopy of Oil Droplets: Absolute Separations and Forces in Nanofilms*. Working with Associate Professor Ray Dagastine and his team from the University of Melbourne, Douglas helped investigate the interactive forces between oil droplets and bubbles.

