

MCN is officially launched



On the 7th of July 2010 the Melbourne Centre for Nanofabrication was officially opened.

The Victorian State Premier John Brumby attended the opening ceremony, in addition to Victorian Innovation Minister Gavin Jennings, Federal Deputy Innovation Minister Richard Marles and local State Member of Parliament Hong Lim. The event was well attended with representation from partners, suppliers, industry, government and press.



During his speech Mr Brumby stated "This state-of-the-art nanofabrication centre – the largest research facility of its kind in the southern hemisphere – puts Victoria at the forefront of an exciting science and helps ensure our state remains Australia's science leader."

The MCN is the Victorian node and headquarters of the Australian National Fabrication Facility (ANFF).

Class 100 update

The class 100 cleanroom is progressing well, essential services have been installed and the basic building shell has been erected. Hand over of the facility is scheduled for October. For more information on the class 100 and all other facilities please contact Steve Walker.



*Top Left – Dignitaries hold aloft opening plaque.
Bottom left – Audience listens on.
Bottom Right – Premier John Brumby addresses the audience.*

A word from the director

The past 9 months have been an extremely busy yet exhilarating time at the Melbourne Centre for Nanofabrication. At the end of January 2010 we occupied the administration section of the building for the first time, donning hard hats and visibility jackets to access our offices through the building site and via a back entrance. A month later we took possession of the keys to the rest of the facility, and started to fill it with some of our \$13.2M equipment. Our mission is to support and enable world-class nanofabrication, not only for the present but projecting well into the future. Following the arrival of myself and Facility Manager, Steve Walker, we immediately formulated some redesign tasks that fleetingly slowed down the pace of commissioning, but the level of future-proofing was deemed essential to meet these aims, and during October 2010, we will be the proud owner-occupiers of the final Class 100 cleanroom phase.

Continued page 2 >

An Access & Pricing committee has been formed to oversee usage and occupancy of facility, and in due course will filter application requests, which can be readily submitted online. A business case for the operation and expansion of the MCN is being formulated, outlining the strategy for ensuring maximum usage and steady growth whilst establishing a rationale and justification for current expenditure and ensuring the build-up of income streams from a wide range of external sources.

Despite still being somewhat embryonic, MCN already hosts seminars, reunions, board meetings, topical meetings, workshops and group visits, from academics, industrialists, and political figureheads. We will also aim to inform the general public and educate the younger community through encouraging schools visits, and participation of undergraduates in using some of the experimental apparatus, with a view to inspiring them to take up careers in the area. Consideration will be given to participating in National Science Week through arranging an Open Day in much the same way as happens at the Synchrotron next door.

Communication is held high in our agenda. We have developed an active website and Newsletter as well as information brochures and sponsor National and International conference. We have already had several User days and maintain an expanding email listing where recipients are informed of new developments and equipment commissioning schedules. We have an open door policy at MCN and are only too happy to show visitors around.



Visit to Vistec (US) - by Dr M. Altissimo

Matteo spent 2 very busy and useful weeks at the Vistec factory in Albany (NY), during which time he got to learn the basic operations of our EBL machine. The impressions he had of the tool were that it was robust, flexible, easy to set up and very fast! The work performed there was mainly for CSIRO users, but he also managed to write 8 wafers for internal research and development. During his visit he also visited Digital Matrix, which is supplying the electroplating tools to MCN



Shooting of Department of Education TV campaign

A campaign promoting the achievements and opportunities for Victorians educated in the public school system is currently airing on local television, the setting for which was the Class 10 000 cleanroom and modern spaces of the newly opened Melbourne Centre for Nanofabrication. The campaign features a young nanomaterials doctoral student representative of the type of academic user the Centre expects to attract.

Shooting the campaign involved the indoctrination of the production crew in the ritual of gowning up for the cleanroom as well as wiping down the surfaces of their equipment. Scenes were shot in the Measurement and Characterisation Bay, with the Veeco AFM in the background, and along the passages of the cleanroom. Other scenes were set in spaces within the Centre selected for their visual impact.

Look out for us!

Polymer Electronics capability installed

The glovebox system for fabrication of polymer electronic devices was installed and commissioned within the Class 10 000 cleanroom at the beginning of August, with the first users successfully depositing alumina films of precisely controlled thickness. The system permits fabrication of device electrodes via evaporative processes and atomic layer deposition (ALD) within the same inert atmosphere as application of the organic layer, as well as the capacity to perform in-system characterisation.



The ALD instrument has seen regular use from CSIRO and Monash University scientists and doctoral students at this early stage, with interest already extending to the deposition of titania and zirconia films. Meanwhile thermal evaporative coating has been demonstrated in the Angstrom Engineering unit integrated into the system which, along with the ALD and organic fabrication glovebox, is available now for user training and bookings.

Please contact Zoran Vasic for more details

Farewell to Manni

The staff at MCN wish to thank Manni Sidhu for all her hard work during her time at MCN. She will be greatly missed and we wish her all the best in her new role within Monash University.

EVG Mask Aligner + NIL Installed

MCN is excited to announce that a critical component of for next generation lithography, the EVG620 Mask Aligner with Nano-Imprint Lithography and the EVG 520 Substrate Bonder, has been installed and commissioned.



The EVG620 allows for UV-NIL with stamps to substrates ranging from small chip size pieces up to 150 mm in diameter, capable of achieving resolution in the nm range. The semi-automated EVG520 system is designed for embossing and thermal nanoimprinting applications. The hot embossing system is configured with a universal embossing chamber, high vacuum (1E-6 Torr), high temperature (up to 650°C) and high-contact force (up to 40kN) capabilities and manages the whole range of polymers suitable for hot embossing. Together with precision alignment and high-aspect ratio embossing many processes for high quality pattern transfer and nm resolution are offered.

These production-proven systems from EVG accept substrates up to 150 mm and are compatible with standard semiconductor manufacturing technologies. These tools are capable of handling up to 6" wafers and are available for use now.

Please contact Sasi Kandasamy or Lim Sim for further details.

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