

*ARCNN News. Edition 12, February 2007*



***Welcome***

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Dear Members and Friends

Welcome to the twelfth edition of the ARCNN News.

We are in the process of revamping the Newsletter to bring more information which is of interest to you. We plan to include newly established facilities, funding deadlines, special issues of journals, new books, conferences and member news. If you want to see any additional items in the newsletter, please let us know.

The **Nanotechnology Web Based Forum is now live.** This Nano Forum has been set up to create and stimulate discussion on nanotechnology related matters. We encourage all members to register and take part in this forum.

Many Lecturers have visited Australia and given seminars and CDs of these seminars are available FREE to ARCNN members and friends.

**Nanotechnology Facilities and Expertise Database** will benefit the entire Australian Nanotechnology Community including Govt policy makers. Please submit your expertise and facility details using the ARCNN webpage.

NCRIS announced funding for both NanoFabrication and NanoCharacterisation. Congratulations to all involved in putting these proposals and our special thanks are due to the Facilitators (Profs. Chris Fell and Simon Ringer) of these bids for their efforts.

AMN3 held in Wellington, NZ was highly successful with excellent plenary talks from Nobel Laureate Sir Harry Kroto, Nobel Laureate Professor Steven Chu and Si John Pendry. It is sad to hear the news of passing away of Nobel Laureate Professor Alan MacDiarmid on Feb 7, 2007. Our deepest condolences to his family. Nanotechnology and Science lost a great a champion.

Nobel Laureate Sir Harry Kroto has created a web page with video interviews from Nobel Laureates and other prominent scientists and you may like to visit this website: <http://www.vega.org.uk/>

Preparations for ICONN 2008 are underway and the Conference will be held in Melbourne from 25<sup>th</sup>-29<sup>th</sup> February 2008. ICONN 2008 will be co-chaired by Paul

Mulvaney and Abid Khan and will feature a new industry stream. More details in the next newsletter / ARCNN web page.

*Look forward to your active participation in the Network activities*  
*C Jagadish, Convenor*

*Distinguished Lecturer Visits and ARCNN Seminars*

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A Lecture entitled "Micro-/Nano-Structures for Photonics" by Professor Hiroaki Misawa from The Research Institute for Electronic Science, Hokkaido University Japan was held at the ANU on the 1st of February.

Professor E. G. Wang from the Institute of Physics at the Chinese Academy of Sciences visited the ANU on the 5<sup>th</sup> of February and gave a talk titled "Attempts in CNT Engineering: Nanocone, Nanobell, and Beyond". Prof. Wang also gave seminars in Brisbane and Sydney.

The last lecture hosted at ANU this month was by Professor Jacob Israelachvili from the Department of Chemical Engineering at the University of California, Santa Barbara, titled "Recent Progress in understanding the hydrophobic interaction and its role in complex and biological assemblies". Prof. Israelachvili also visited Melbourne, Sydney and Adelaide.

For those wishing to get a free copy of CD of any of the above talks please send an email to Liz or Ilonka at [arcnn@ausnano.net](mailto:arcnn@ausnano.net).

*Update profiles, address changes etc*

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Please remember to **advise address and email changes** so that the ARCNN member database is kept up to date. Your current details can be checked on your online profile at <http://www.ausnano.net/index.php?page=profiles>.

If you have not submitted an online profile, we would encourage you to do so as this provides a valuable resource for researchers seeking **collaboration** with people who have experience or expertise in a particular nanotechnology area. A **search facility** is provided on the Members Profiles webpage. Researchers looking to fill postdoc **positions** may also use the member database to locate students with research interests and experience in particular fields.

*ARCNN Overseas Travel Fellowships - 2nd Round 2006*

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The ARCNN offers 5 awards of up to \$5000 every 6 months to PhD students and ECRs to assist them in carrying out collaborative research in overseas institutions.

**Deadline for this year's Overseas Travel Fellowships is the 28<sup>th</sup> February. More information can be found at [http://www.ausnano.net/content/overseas\\_travel](http://www.ausnano.net/content/overseas_travel)**

***Australia-China Fund***

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Applications for funding collaborative projects with China are open now and they close on March 20, 2007. ***For further information, please visit DEST web site:***

***<https://sciencegrants.dest.gov.au/ISL/Pages/Home.aspx>***

***Young Nanotechnology Ambassador Awards***

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The ARCNN will award selected students in each state/territory of up to \$2000 to present and facilitate interest in Nanotechnology at local schools.

**The deadline for this year's first round of applications for the Young Nanoscience Ambassador Awards is 30 March.** Further information about the Program could be found at: [http://www.ausnano.net/content/young\\_ambass\\_awards](http://www.ausnano.net/content/young_ambass_awards)

***Distinguished Lecturer Tour planned for June***

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Professor Selim Ünlü, a Professor of Electrical and Computer Engineering, Biomedical Engineering, and Physics at Boston University will be visiting Australia in the last week of June. Prof Ünlü's career interest is in research and development of photonic materials, devices and systems focusing on the design, processing, characterization, and modeling of semiconductor optoelectronic devices, especially photodetectors, as well as high-resolution microscopy and spectroscopy of semiconductor and biological materials. Expressions of interest are sought from members for Prof Ünlü to visit their institution during his tour. Please email your request to [arcnn@ausnano.net](mailto:arcnn@ausnano.net). We will endeavour to accommodate requests within the constraints of the time available.

The title of his Seminar is: "Nanoscale Imaging of Semi-Conductor and Biological Systems"

For further information, please visit the ARCNN website: [www.ausnano.net](http://www.ausnano.net) .

***Nanotechnology Facilities Database***

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ARCNN has added a Nanotechnology Research Facilities and Capabilities database onto our site. The aim of this database is to be a first access site to all the Nanotechnology

Infrastructure facilities and capabilities available to nanotechnology researchers. All group leaders who are interested in adding their facilities onto the ARCNN site will be asked to add facilities/equipment/Infrastructure. NCRIS facilitators have been using the Network web page to get information about activities in various institutions in the country.

In each Newsletter we will be featuring a different facility.

### ***Featured Nanotechnology Facilities***

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#### **Excimer laser facility**

##### **Nanotechnology Capabilities:**

248 nm KrF excimer laser, wavelength 248 nm, pulse energy up to 80 mJ, repetition rate up to 200 Hz, pulse length ~8 ns. Primarily used in laser surface treatments to date. Suitable for a diverse range of laser processing.

**Research Group:** [Macquarie University, Department of Physics](#)

**Contact Details:** [Deb Kane](#)

61-(0)2-9850-8907

#### **Optical Surface profiler**

##### **Nanotechnology Capabilities:**

Make: WYKO (Veeco Metrology Group) Model: Semi-custom Veeco large sample format Interferometric profiler. The operation is consistent with the NT3300 model. The OSP operates in two different modes. 1. Phase-shifting interferometry (PSI) mode which is used for very smooth surfaces with surface roughness less than 160 nm. The vertical resolution of the system is 0.1 nm in PSI mode 2. Vertical-scanning interferometry (VSI) which is suitable for rougher surfaces. The vertical resolution of the system is 1 nm in VSI mode for limited vertical scan range. This may be reduced for larger vertical scan ranges which go up to 1 mm with this instrument. The area imaged in a single scan, for a given objective magnification and field of view (FOV) setting, is tabulated below.

Objective	FOV	Area (m m x mm)
50x	2	59 x 45
50x	1	120 x 91
50x	0.5	244 x 186
5x	2	591 x 449
5x	1	1200 x 910
5x	0.5	2400 x 1900

The lateral spatial resolution is 0.55 mm to 13.2 mm depending on the combination of objective magnification (5x or 50x) and Field of View (settings, 2, 1, or 0.5). The highest lateral resolution is obtained when the area imaged is the smallest. Larger areas can be imaged by stitching together multiple scans. The sample is moved on an x-y translation stage. 350 mm diameter wafers can be accommodated on the large sample stage.

**Research Group:** [Macquarie University, Department of Physics](#)

**Contact Details:** [Deb Kane](#)

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***Journal Special Issues-***

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**Journal of Nanomaterials** - call for papers for the special issues of the Journal of Nanomaterials.

They can be accessed through the following links:

*Surface Nanoscience:* <http://www.hindawi.com/GetPage.aspx?journal=JNM&PAGE=SNS>

*Architecture of Crystallographic Oriented Nanocrystals:*

<http://www.hindawi.com/GetPage.aspx?journal=JNM&page=ACONC>

*Composite Hollow Spheres and Capsules*

<http://www.hindawi.com/journals/jnm/si/chsc.html>

*Modeling and Characterization of the Interaction of Electromagnetic Wave with Nanocomposites and Nanostructured Materials*

<http://www.hindawi.com/GetPage.aspx?journal=JNM&page=NANOWAVE>

The journal of Nanomaterials ISSN: 1687-4110, e-ISSN: 1687-4129 is an international refereed journal. The overall aim of the Journal of Nanomaterials (JNM) is to bring science and applications together on nanoscale and nanostructured materials with emphasis on synthesis, processing, characterization, and applications of materials containing true nanosize dimensions or nanostructures that enable novel/enhanced properties or functions. It is directed at both academic researchers and practising engineers. JNM will highlight the continued growth and new challenges in nanomaterials science, engineering, and nanotechnology, both for application development and for basic research. For complete information about JNM, please visit the journals website at <http://www.hindawi.com/GetJournal.aspx?journal=JNM>

*Upcoming ARCNN Supported Events*

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**The Second Australian Nanoindentation Workshop** to be held at Kioloa, NSW from 18<sup>th</sup>-20<sup>th</sup> March 2007. Further information can be found at:

[www.wwwwrsphysse.anu.edu.au/nanoindentation/](http://www.wwwwrsphysse.anu.edu.au/nanoindentation/)

**The 3<sup>rd</sup> Asian and Pacific Rim Symposium on Biophotonics (APBP2007)** in conjunction with Downunder II to be held in Cairns from 9-11<sup>th</sup> July

<http://www.swinburne.edu.au/hosting/apbp2007/>

**The Nanostructures for Electronics Energy and Environment (Nano-E3)** workshop and school to be held at South Stradbroke Island, Qld from the 3-7<sup>th</sup> September

<http://www.scientificambitalia.org/events06/nanows.html>

Further details of the above can be found at

<http://www.ausnano.net/index.php?page=events>

*Other Overseas Nano events*

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**IEEE Nanotechnology Conference (IEEE NANO 2007)** will be held in Hong Kong during August 2-5, 2007. Abstract submission deadline has been extended to Feb 28, 2007. Further information could be found at: <http://www.ieee-nano.org/>

**IEEE/LEOS Optical MEMS and NanoPhotonics 2007** will be held in Taiwan during August 12-16, 2007. Abstract submission deadline is: May 18, 2007. Further information could be found at: <http://omems2007.itrc.org.tw/>

**EU 7<sup>th</sup> Framework Programme (FP7)** Further information including brochures and presentations can be found at <http://www.ausnano.net/index.php?page=links>

*Other Nano events*

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**The I2CAM Workshop** will be held 9-13<sup>th</sup> April 2007 at Yeppoon. Further information can be found under this link [www.physics.uq.edu.au/i2camworkshop](http://www.physics.uq.edu.au/i2camworkshop)

**Nanowerk** offers a unique and free nanomaterials database with over 1,400 nanomaterials, largest nanotech conference database, daily news coverage, exclusive Nanowerk Spotlight articles plus a vast range of other information and links. This site can be accessed through this link <http://www.nanowerk.com/>

***ARCNN Admin Contacts***

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For further information regarding ARCNN or any events, please contact Liz or Ilonka, or go to [www.ausnano.net](http://www.ausnano.net)