From the Director’s Chair

QMNC has continued to grow and prosper over the past 6 months. I would particularly like to recognise the success of Alan Iacopi, Sima Dimitrijev, Xiangdong Yao and Tak Hyun Kim as recipients of Queensland Government grants and fellowships.

Welcome to all the new HDR students. This year we have 12 new students, and we expect more to arrive before the end of the year. We hope that you have a great HDR student experience in QMNC. Congratulations to Tim Webb who was selected for the role as QMNC HDR representative, and thanks to Tim, Jianlan Cui, Ehsan Eftekhari and Jie Cui for being part of the student committee. Welcome also to academic and student visitors!

We also have two new academic staff members: Dr Dzung Dao’s profile is included in this newsletter and Professor Geoff Tansley will join us next week from Aston University. Geoff will take up the position as Head of Mechanical Engineering on the Gold Coast, and has a background in research and development of mechanical systems and medical devices, with an international reputation for his work on mechanical cardiac support. Welcome to Dzung and Geoff!

It is hard for me to believe that I will be no longer here this time next week. I will certainly miss all the QMNC members - it has been an honour to be Director for the last few years. The exciting work that is being carried out and the collegiality of all the staff made my role stimulating and a great pleasure. Recently, each time I joined a meeting about an exciting new initiative by QMNC members, met with our commercial partners or met the new students I wonder if I should stay! However, I am also looking forward to the new opportunities at The University of Queensland. I have accepted an Adjunct appointment with QMNC and my students Sarah and Stuart will still be here, so I expect to be able to catch up regularly in the future. Hopefully new opportunities for collaboration with QMNC will also eventuate.

I look forward to watching QMNC continue to grow. Appointment of a new Director is underway and until then Sima Dimitrijev has kindly agreed to take on the role as Acting Director and John Dobson the role as Acting Deputy Director. I know you will all support them in these roles.

I wish you all the best, and thank you once again for making QMNC a great place to have worked!

Debra

Farewell Debra

On behalf of the QMNC, we wish Debra all the best in her new role as Group Leader of the Centre for Computational Molecular Science within the Australian Institute for Bioengineering and Nanotechnology (AIBN) at the University of Queensland. Debra commenced at Griffith University in 2000 as Lecturer in the School of Science (now BPS) and became Director of the QMNC in 2009. We shall all miss Debra’s leadership and guidance along with her kind and gentle nature.

Debra’s last day at Griffith will be Friday 13 July and we will be holding a farewell for her that day at 4.00pm in the Uni Bar and Function Centre, Nathan Campus. Please RSVP your attendance to Lacey ASAP.
New Starters

STAFF

Dr Dzung Dao

Dzung joined the QMNC in January and is a Senior Lecturer in the School of Engineering. Dzung’s qualifications include BEng, MEng, PhD and his research interests are as follows:

- Micro/Nano Machining Technology
- Nanostructured Materials (e.g. Silicon Nanowire, CNT, Photonic Crystal): Property and Application

Dzung also teaches in Precision Engineering & Prototyping, Micro/Nano Machining and Mechatronic Systems Design and Engineering. Dzung is located in room 2.32 G39 on the Gold Coast campus, xtn 28065.

STUDENTS

Several new PhD students have started this year and they include:

Abdul Aziz Ahmad (BPS - Chris Brown)
Hamid Amini Moghadam (ENG – Sima Dimitrijev)
Ehsan Eftekhari (ENG – Qin Li)
Syed Hasnain (BPS – Evan Gray)
Jagan Kudimi (ENG – Faisal Mohd-Yasin)
Fahimullah Khan (ENG – Yong Zhu)
Michael Kelly (BPS – Jim Webb)
Tak Hyun Kim (ENG – Qin Li)
Jitendra Pal (ENG – Yong Zhu)
Wentai Wang (ENG – Qin Li)
Tim Webb (BPS – Evan Gray) – QMNC student rep
Xuecheng Yan (BPS – Xiangdong Yao)

We welcome all new staff and students to the QMNC

Research

Here we highlight some of the recent research activities and achievements in our Centre.

Dr Qin Li’s recent work on upconversion fluorescent carbon nanodots enriched with nitrogen for light harvesting is about to go on-line on Journal of Materials Chemistry, DOI: 10.1039/c2jm30935a. In this work, Dr Qin Li and her co-workers have shown for the first time that TiO₂ photoanode sensitised by N-enriched carbon nanodots is capable of converting near IR photoenergy to photocurrent.
Conferences and Meetings

Reports from some of the conferences and meetings attended by QMNC Members:

Visit to China

In May, Assoc Prof Xiangdong Yao paid a visit to China. As a part of his trip, he joined the delegation of Deputy Vice-Chancellor (Research), Prof Ned Pankhurst, to visit several institutions in Beijing. Xiangdong participated in visits to the Graduate School of Chinese Academy of Sciences to sign the agreement of joint supervision of PhD students, Administrative Centre for China’s Agenda 21 (ACCA21), Ministry of Science and Technology of China and National Nanoscience Centre of Chinese Academy of Sciences. Xiangdong also visited South China University of Technology in Guangzhou, Jilin University Zhuhai Campus and Xi’an Jiaotong University in Xi’an for project meetings and collaborative research. The visits were very informative and productive.


Dr Qin Li delivered an invited talk “Carbon Nanodots Lighting up the Way”, at OzCarbon2012 in July. PhD students Wentai Wang and Tak H. Kim presented their posters on all solvents soluble carbon dots, and carbon dots for solid state luminescent thin films. QMNC Adjunct Professor Liming Dai was also a plenary speaker at the meeting.

OzCarbon2012 - a first meeting for Australia - considers carbon materials ranging all the way from traditional activated carbon through to more modern nanoporous carbons and beyond to glassy carbons, carbon nanotubes and graphene. The meeting spans from materials aspects of carbon through to its applications, and covers both experimental and theoretical aspects.
Report from QMNC HDR Rep - Tim Webb

Hi, my name is Tim and I'm the new QMNC HDR representative!

I completed a Bachelor of Photonics and Nanoscience here at Griffith last year and am now doing a PhD with Prof Evan Gray on relating the structure of a hydrogen storage material to its hydrogen storage properties.

When Debra sent out the email a month or so ago asking for nominations for the QMNC HDR representative (that's too long, maybe QHR?), I thought that it could be a new and interesting experience and a great opportunity to get to know other HDR students in the Centre which, in turn, could result in new collaborations. So I volunteered!

Debra has had a few other students volunteering to be part of a student committee, so in the coming months we will be talking about and hopefully organizing some HDR events of some sort. As to exactly what my role as HDR representative is, I'm still working that one out exactly! But basically I will be a Board of Graduate Research HDR Student Member and so can bring any issues or suggestions that any of us have to the attention of the University.

If anyone wants to contact me with suggestions, questions, or for any other reason, my details are below.

Best of luck with your research,

Tim Webb, QMNC HDR representative

Email: timothy.webb@griffithuni.edu.au
Location: Science 1 (N25) 2.34

Summer Scholarship Students

In October 2011, 9 students accepted Summer Scholarship offers from the QMNC and completed their research plans successfully by February 2012. These students were invited to present their research to each other and their supervisors on Wednesday 29 February (see photo below). This event gave students an opportunity to share their research with fellow students and gave them presenting experience. The successful students include Jenna Barnard, Edna Carmi-Jones, Kien Chung Chaik, Cherry Ho, Sohrab Makaremi, Waylon Nielsen, Darryl Pyle, Tim Wills and Julia Wood.

Summer Scholarship Students and Supervisors
Awards and Acknowledgements

Vice Chancellor's Research Excellence Awards

The Vice Chancellor's annual Research Excellence Awards, which were held on 31 May, celebrate the University's research achievements and acknowledge the achievements of outstanding individual researchers and research groups. It is the collective achievements of our researchers that have made the University the outstanding institution it is today.

Professor Debra Bernhardt
Leadership Award

Debra is founding Director of the Queensland Micro- and Nanotechnology Centre which was formed in mid-2009. A world leader in non-equilibrium statistical mechanics, Debra is widely known for her work to develop a fundamental understanding of behaviour of small, nanoscale systems and systems far from equilibrium. She uses the molecular level theory to derive laws of nature. She leads a team of outstanding researchers who are pushing the boundaries of knowledge in the broad fields of micro- and nano-technology.

The QMNC congratulates Debra on receiving this most prestigious award and wishes her well in her future endeavours.

Queensland International Fellowship Awards
Assoc Prof Xiangdong Yao

The Queensland International Fellowship awards were held on Wednesday 27 June and Assoc Prof Xiangdong Yao is a proud recipient of the Fellowship for his multidisciplinary project involving researchers from the USA and China.

Assoc Prof Yao said the $25,000 he is receiving from this program is a boost to his research into Semiconductor Nanowires for Energy Conversion. "We are collaborating on the development of a new material to create more efficient conversion of heat into useful energy," Associate Professor Yao said.

Congratulations Debra and Xiangdong!
Visitors

We have had several visitors to the QMNC including:

- Dr Giovanni Vignale, University of Missouri-Columbia (Jan)
- Assoc Prof David Young, Universiti Brunei Darussalam (Feb)
- National Youth Science Forum (Feb)
- Prof Lamberto Rondoni, University of Turin, Italy (March)
- Prof Edie Sevick and Dr Genmiao Wang, ANU (April)
- Dr Stephen Williams, ANU (May)

Longer term visitors to the Centre include:

- Dr Zhao Jin, Jilin University, Changchun, China (Feb – Aug)
- Dr Xiaojun Zhao, Jilin University, Changchun, China (Feb – Aug)
- Ms Laura Malesys, Université de Bourgogne, France (April – July)
- Mr Prashant Karade (April – August)
- Devagnik Dasgupta, University of Turin, Italy (May – Aug)
- Abdullah Alshaikhi, King Abdulaziz University, Saudi Arabia (June - July)

Seminars – 1st Semester 2012

- Dr Giovanni Vignale, University of Missouri-Columbia - Spin Drag: From Semiconductors to Cold Atoms – 11 January
- Dr Francesca Iacopi, Griffith University - The Path for New Materials into Microelectronics – 24 February
- Assoc Prof David Young, Universiti Brunei Darussalam - "Click" Chemistry Modification of Surfaces – 28 February
- Prof Edie Sevick and Dr Genmiao Wang, ANU - Force Spectroscopy of Soft Matter – 20 April
- Prof Guangshan Zhu, Griffith University - Targeted Synthesis of Porous Materials for CO2 Capture and Low Energy Separation – 27 April
- Mr Lester Barnsley, Griffith University - Exchange bias in manganese alloys with mixed magnetic behaviour – 1 June
- Dr Chris Pakes, La Trobe University - Molecular surface transfer doping of hydrogen-terminated diamond – 28 June

New Grants

Congratulations to the recipients of the following new grants and scholarships:

- Smart Futures Research Partnerships Grant – Sima Dimitrijev, Alan Iacopi and Debra Bernhardt “A Silicon Carbide on Silicon Semiconductor Microfabrication Program at the Queensland Microtechnology Facility”, $1,000,000
- Smart Futures PhD Scholarship – Tak Hyun Kim “Lighting the way – smart carbon quantum dots for subsurface resources management”
- Smart Futures Queensland International Fellowships – Xiangdong Yao - “Semiconductor Nanowires for Energy Conversion”, $25,000
- GU Industry Collaborative Scheme/ORICA – Greg Hope - Investigation of the flotation of surface oxidized copper sulfides with CPS $40,000
- Aarhus Uni – Jim Webb - High Pressure Hydrogen Storage system $8,000