

Advances in Functional Nanomaterials

The 5th Annual Conference of the ARC Centre for Functional Nanomaterials

5-7th November 2008

Holiday Inn, Surfer's Paradise, Gold Coast

Conference Timetable

Date: Wednesday 5th November 2008

Lunch 12:00 – 13:00 (registration from 12:30)

Plenary Lectures – Session Chair Prof Rose Amal

| Time | Speaker |
|---------------|--|
| 13:00 – 13:15 | Prof Max Lu Conference Opening and Welcome |
| 13:15 – 13:45 | Prof Francois Beguin <i>Optimised nanotextured carbons for high performance supercapacitors</i> |
| 13:45 – 14:15 | Prof Huiming Cheng |
| 14:15 – 14:30 | Coffee Break |
| 14:30 – 15:00 | Prof John Dodds <i>Improving the bioavailability of medicines by process engineering</i> |
| 15:00 – 15:30 | Prof Morinobu Endo <i>Carbon nanotubes - state-of-the-art technology and safety for success</i> |

Evening Program

| Time | Event |
|---------------|---|
| 15:30 – 17:30 | Free Time |
| 17:30 – 19:30 | Poster session and pre-dinner drinks (from 18:30) |
| 19:30 – 21:00 | Barbeque Dinner |

Date: Thursday 6th November 2008

Plenary Lectures, Session Chair: Prof Max Lu

| Time | Speaker |
|---------------|--|
| 8:30 – 9:00 | Peter Hodgson <i>Nanostructural engineering of steel</i> |
| 9:00 – 9:30 | <i>Prof Suresh Bhargava</i> <i>From Molecules to Nanomaterials</i> |
| 9:30 – 10:00 | William Humphries <i>Synthesis and fabrication of CNT sheets, yarns and fabrics</i> |
| 10:00 – 10:15 | Coffee Break |

Date: Thursday 6th November 2008 (continued)

Sessions on Environmental Technologies and Computational Nanoscience

| | Environmental Technologies Session Chairs: Dr Jason Scott / Prof Michael Wilson | Computational Nanoscience Session Chairs: Prof Sean Smith / Prof Aibing Yu |
|---------------|--|--|
| Time | Speaker | Speaker |
| 10:15 – 10:45 | A.Prof Rachel Caruso (invited speaker) <i>Porous titanium dioxide spheres and their application</i> | Prof Xueqing Gong (invited speaker) <i>Density functional theory calculations of structures and reactivities of TiO₂ surfaces</i> |
| 10:45 – 11:15 | A.Prof Jing Wang (invited speaker) <i>Filtration by nanofiber filters</i> | Mr Li Chen <i>Molecular dynamics simulation on the growth mechanism of WO₃ nanorods</i> |
| | | Mr Kenneth Wong <i>Ab initio study of CO oxidation on copper modified Ceria(111)</i> |
| 11:15 – 11:30 | Mr Frans Denny <i>Photocatalytic ethylene oxidation by a TiO₂-coated channeled optical fiber reactor</i> | Dr Chenghua Sun <i>Selective adsorption of transition metals on Boron Nitride nanotubes</i> |
| 11:30 – 11:45 | Mr Teshale Degefu <i>Responses of Helicoverpa armigera to some plant extracts formulated as modified bentonite adsorbents</i> | Dr Qinghua Zeng <i>Interfacial structure and interactions in polymer-clay nanocomposites</i> |
| 11:45 – 12:00 | Mr Tom Rufford <i>Electrochemical energy storage in carbon from waste coffee grounds</i> | Dr Hong Zhang <i>Intercalation of organic molecules into layered double hydroxide: comparison of simulation with experiment</i> |
| 12:00 – 12:15 | Mr Richard Kydd <i>Role of support in copper oxidation catalysts</i> | Dr Aijun Du <i>Formation of Single Walled Carbon Nanotube Via the Interaction of Graphene Nanoribbons: ab initio Density Functional Calculations and Molecular Dynamic Simulation</i> |
| 12:15 – 12:30 | Mr Aniruddh Mukherji <i>Visible light active photocatalysts</i> | Dr Qiao Sun <i>QM/MM Study of Far-red Fluorescent Protein HcRed</i> |

Lunch 12:30 – 13:30

Date: Thursday 6th November 2008 (continued)

Sessions on Fundamental Synthesis Techniques and Health Care

| | Fundamental Synthesis Techniques Session Chairs: A.Prof Ying Chen / Dr Kamali Kannangara | Health Care Session Chair: Dr Darren Martin |
|---------------|---|--|
| Time | Speaker | Speaker |
| 13:30 – 14:00 | Prof Yang Kim (invited speaker) <i>Preparation of novel mesoporous Silica nanotubes and its application</i> | Prof Tijana Rajh (invited speaker) <i>Nanoparticles; Nucleic Acids and Proteins: from Energy Conversion to Cell Manipulation</i> |
| 14:00 – 14:30 | Mr Luhua Li <i>Growing Boron Nitride nanotubes by ink jet printing</i> | Prof Rodney Minchin (invited speaker) <i>Interaction of nanoparticles with biological systems</i> |
| | Dr Xuchuan Jiang <i>Surfactant-assisted synthesis of metal nanostructures and their growth mechanisms</i> | |
| 14:30 – 14:45 | Dr Zhen Li <i>Controlled-synthesis of II-VI semiconductor nanowires by solution-liquid-solid method</i> | Ms Zi (Sophia) Gu <i>Layered double hydroxides as delivery vehicles for low molecular weight heparin- synthesis, release, and cytotoxicity</i> |
| 14:45 – 15:00 | Dr Adriyan Milev <i>Techniques for controlling carbon nanotube synthesis</i> | Ms Jun Yu <i>Dispersion of boron nitride nanotubes in aqueous solution with the help of ionic surfactants and BN nanotube magnetic properties for drug delivery</i> |
| 15:00 – 15:15 | Dr Nguyen Tran <i>Attachment of poly(acrylic acid) onto carbon nanotubes and their use</i> | Mr Anthony Musumeci <i>Synthesis, labelling and surface enhanced Raman spectroscopy (SERS) of TiO₂ nanoparticle libraries</i> |
| 15:15 – 15:30 | Coffee Break | Coffee Break |
| 15:30 – 16:00 | A Prof Jin Zou (invited speaker) <i>Role of catalysts in the growth of epitaxial nanowires and their associated heterostructures</i> | Prof Chengzhong Yu (inv. speaker) <i>Functional Macroporous Materials Designed for Proteomic Research</i> |
| 16:00 – 16:15 | Dr Huagui Yang <i>Anatase TiO₂ single crystals with a large percentage of reactive facets</i> | Ms Maria Arsianti <i>Cellular uptake of biopolymer coated magnetic iron oxide nanoparticles</i> |
| 16:15 – 16:30 | Mr Jeffrey Yue <i>Preparation of Iron Oxyhydroxide/gold and platinum nanorod composites</i> | Dr Cindy Gunawan <i>Reversible antimicrobial photoswitching in nano-silver</i> |

Date: Thursday 6th November 2008 (continued)

Evening Program

| Time | Event |
|---------------|--|
| 16:30 – 19:00 | Free Time |
| 19:00 – 22:00 | Conference dinner After dinner speakers, Professor Robert Burford, UNSW and Professor John Drennan, ARCCFN, UQ Student awards |

Date: Friday 7th November 2008

Clean Energy Forum, Session Chairs: A.Prof Ian Gentle / Prof John Zhu

| Time | Speaker |
|---------------|---|
| 8:30 – 9:00 | Prof David Trimm |
| 9:00 – 9:30 | Prof Adesoji Adesina <i>Syngas production from CO₂ reforming of propane: Carbon resilience attributes of a bimetallic Co-Ni catalyst system</i> |
| 9:30 – 10:00 | Dr Sue Ellis |
| 10:00 – 10:30 | Prof Elzbieta Frackowiak <i>Pseudocapacitive effects in electrochemical capacitors</i> |
| 10:30 – 10:45 | Coffee Break |
| 10:45 – 11:15 | Dr Tony Pandolfo |
| 11:15 – 11:45 | A/Prof Guoxiu Wang <i>One dimensional nanostructures for advanced battery and chemical sensor applications</i> |
| 11:45 – 12:00 | Dr Yonggang Jin <i>Proton conductive Silica functionalized with phosphonic acid for intermediate temperature PEMs</i> |
| 12:00 – 12:30 | Conference Close, Prof Rose Amal |

Lunch from 12:30