



Australian National Fabrication Facility Ltd
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ANFF Annual Research Showcase 2014 – A Platform for Innovation

18-19 November 2014

Shine Dome, 15 Gordon Street, Acton, ACT 2601

Innovation – the creation of new products and services – holds the key to a bright future for a healthy, prosperous Australia. We face global challenges including, energy, healthy ageing and security, but these are also global opportunities. Solutions to many of these challenges lie at the nanoscale. We are seeing a convergence of disciplines. As physics, chemistry, biology, and engineering come together new possibilities are opening up enabling the development of new technologies.

This year's showcase is an opportunity for ANFF users to present innovative work carried out in ANFF facilities across the Nodes. The showcase demonstrates that ANFF is *A Platform for Innovation*.

Program

Day 1 - Tuesday 18 November 2014

09:00	ANFF Annual General Meeting, member representatives only	
10:15	Welcome to the Shine Dome by Professor Jagadish, Vice-President and Secretary Physical Sciences, Australian Academy of Science	
10:25	Capability overview ANFF-VIC	Paul Pigram: Time-of-flight secondary ion mass spectrometry (ToF-SIMS): New capabilities at La Trobe University
10:45	Alessandro Rossi UNSW	A Silicon Single-Electron Pump for Electrical Current Standards
11:00	Simon Lefrancois CUDOS, University of Sydney	On-chip chalcogenide glass optical gate for terabaud signal sampling
11:15	Gilberto Umana-Membreno UWA	Mobility spectrum analysis of electronic carrier transport in nanostructured materials and devices
11:30	Di Yan ANU	Phosphorus doped polysilicon selective electron contact for silicon solar cells: passivation and contact resistance
11:45	Qiaoliang Bao Monash University	Photonics of Two-dimensional nanomaterials
12:00	Lunch	
12:45	Dwayne Kirk Director MCN	Overview of ANFF National Design House
13:00	Capability overview OptoFab Node	Heike Ebendorff-Heidepriem: Extrusion and 3D printing – a perfect match
13:15	Duk-Yong Choi ANU	Colour filters based on plasmonic nanostructure
13:30	Kenneth Crozier University of Melbourne	Engineering light-matter interactions at the nanoscale: challenges and opportunities
13:45	Timothy Davis CSIRO	All-optical modulation and switching using nanoscale plasmonic circuits
14:00	Benjamin Eggleton CUDOS, University of Sydney	High performance on-chip RF photonic components based on photonic-phononic interactions

14:15	Simon Fleming University of Sydney	A drawn metamaterial hyperlens
14:30	Afternoon tea	
14:50	Capability overview ANFF-SA	Simon Doe and DSTO Edinburgh
15:05	Maryanne Large Bandwidth Foundry University of Sydney	Why Sharks don't grow Barnacles, and other tiny mysteries
15:20	Craig Priest University of South Australia	Microfluidics for multiphase control and process intensification
15:35	Eoin Sheridan University of Queensland	Microfabricated optomechanical systems for on-chip sensing
15:50	Andrew Rose Southern Cross University	Ultrafast microfluidic mixing devices to study mineral formation reactions in aqueous systems
16:15	Official opening of the metal organic chemical vapour deposition (MOCVD) reactors at ANU	
18:30-21:00	Research Showcase Dinner & Frater Awards 2014	

Day 2 - Wednesday 19 November 2013

9:00	Capability overview ANFF-NSW	Nadia Court: Expanded nanofabrication and materials capabilities at ANFF-NSW
9:15	Ryan Pawell UNSW	Automating microstructure array verification
9:30	Linh Viet Nguyen University of Adelaide	Femtosecond laser written Bragg gratings on microstructured optical fibres for high temperature sensing
9:45	Yonggang Zhu CSIRO	A lab on a chip device for particle processing using a hybrid dielectrophoresis and hydrophoresis technique
10:00	Wenlong Cheng Monash University	Nano-enabled skin-like wearable biomedical sensors
10:15	Malcolm Purdey CNBP, University of Adelaide	Functionalisation of optical fibres for biosensing applications
10:30	Morning tea	
10:50	Capability overview Materials Node	Ben Vaughn: Roll-to-Roll (R2R) coating facilities at the Centre for Organic Electronics, UoN Adrian Gestos: Coating, patterning and '2D' fabrication at UoW
11:05	Ann Roberts University of Melbourne	Novel particle and slot nano-antennas and their production scalability
11:20	Adam Taylor University of Wollongong	System and process development for coaxial additive Fabrication
11:35	Charlene Ng CSIRO	Plasmonic nanostructures for efficient photocatalytic processes
11:50	Nathan Cooling University of Newcastle	Active layer material scale-up for large scale roll-to-roll printing of organic solar cells
12:05	Tim Mapperson University of Melbourne	Nanofabrication for 'bottom up' plasmonic materials
12:20	Lunch	
13:05	Dwayne Kirk Director MCN	Overview of LEAN
13:20	Capability overview ANFF-Q	Doug Mair: ANFF-Q – The Bio-Nano Node: 3D Printing Bio-structures at the Nanoscale
13:35	Thomas Ameringer Swinburne University	Modification of optical components by RF plasma treatment
13:50	Joshua Simpson University of Queensland	Uptake, Behaviour and Dynamics of Polymer Delivered siRNA Therapeutics in the Treatment of Glioblastoma and Other Cancers

14:05	Francesca Iacopi Griffith University	Graphene on silicon wafers: perspectives as metal replacement
14:20	Nick Cvetojevic CUDOS, University of Sydney & The Australian Astronomical Observatory AAO	Today's photonic technologies - tomorrow's astronomical instruments
14:35	Afternoon tea	
14:55	Capability overview ANFF WA & ACT	Mariusz Martyniuk
15:10	Karyn Jarvis ANSTO	Atomic layer deposition for the development of flexible barrier films
15:25	Alexey Glushenkov Deakin University	High precision Al ₂ O ₃ coating on boron nitride nanotubes through ALD deposition technique
15:40	Sepidar Sayyar ACES, University of Wollongong	Development of graphene biocomposites for biomedical applications
15:55	Concluding remarks.	
16:15	Close	