

Nano- and Micro-Engineering Winter School
G31, Old Main Building, University of New South Wales
Monday 17th – Wednesday 19th July 2017

PROGRAM

DAY 1: Monday 17th July

08:45 – REGISTRATION

09:15 – Opening address

Scientia Prof Andrew Dzurak – Director, ANFF-NSW



09:30 – Introduction to the Australian National Fabrication Facility (ANFF)

Dr Linda Macks, Facility Manager, ANFF-NSW

10:00 – [Research talk] Holes are not electrons: unexpected behaviour of quantum confined holes in semiconductor nanodevices

Scientia Prof Alexander Hamilton – School of Physics, UNSW

10:30 – COFFEE

11:00 – [Research talk] “Building a quantum computer one atom at a time with scanning tunneling microscope lithography”

Dr Matthew House – School of Physics, UNSW

11:30 – [Research talk] “Superconducting micro-resonators for spectroscopy at the quantum limit”

Dr Jarryd Pla – School of Electrical Engineering & Telecommunications, UNSW

12:00 – [Research talk] “Spin-based quantum computing in a silicon-CMOS compatible platform”

Scientia Prof Andrew Dzurak – School of Electrical Engineering & Telecomm., UNSW

12:30 – LUNCH

13:30 – [Research talk] “Nano fabrication processes for MEMS/NEMS devices on silicon chip”

Daniel Chen – School of Electrical Engineering & Telecommunications, UNSW

ANFF-NSW GRATEFULLY ACKNOWLEDGES THE FOLLOWING FUNDING SOURCES:

14:00 – [Industry talk] “Microprocessing for a Tech Startup: A case study”

Josiah Firth – Engineer, Zedelef

14:30 – Laboratory safety induction

Dr Linda Macks, Facility Manager, ANFF-NSW

15:00 – Lab tour (2 groups of maximum 10 people)

Pierrette Michaux, Process Engineer, ANFF-NSW

Dr Andrew See, Process Engineer, ANFF-NSW

16:00 – CLOSE

DAY 2: Tuesday 18th July

09:00 – [Seminar] “Photolithography and Direct-Write Lithography”

Dr Fay Hudson – Process Manager, ANFF-NSW

10:00 – [Seminar] “Introduction to Epitaxy and Epitaxy Growth”

Dr Jeff Cheung – Process Engineer, ANFF-NSW

11:00 – COFFEE

11:30 – [Research talk] “Organic Optoelectronics”

Dr Amir Asadpoordarvish – School of Physics, UNSW

12:00 – [Research talk] “Ferroelectric domain wall memory”

Prof. Nagarajan Valanoor – School of Material Science and Engineering, UNSW

12:30 – [Research talk] “Interfacial properties of perovskite oxide heterostructures”

Xinrun Xiong – School of Material Science and Engineering, UNSW

13:00 – LUNCH

14:00 – [Research talk] “Lab-on-a-chip simulation of embryonic blood flow to study the mechanobiology of endothelial to haematopoietic transition”

Jingjing Li, School of Biomedical Engineering, UNSW

14:30 – [Research talk] “Microfabricated technologies for detecting single molecules and single cells”

Scientia Prof. Justin Gooding – School of Chemistry, UNSW

15:00 – LAB-BASED DEMONSTRATIONS

*Registered students will participate in one of the four sessions available**

16:15 – CLOSE

DAY 3: Wednesday 19th July

09:00 – [Research talk] “Electron-beam patternable ion-conductive elements for nanoscale electronics”

A/Prof Adam Micolich – School of Physics, UNSW

09:30 – [Research talk] “Upconversion Nanoparticles for Biophotonics”

Dr Fan Wang – School of Mathematical and Physical Sciences, UTS

10:00 – [Seminar] “Laser Machining”

Dr. Benjamin Johnston – Node Manager & POC at ANFF OptoFab, Macquarie University

10:30 – COFFEE

[Seminar] “Introduction to (ANFF) Deposition and Etching Techniques for fabricating micro and nanoscale devices”

Dr Mark Gross, ANFF-NSW

11:00 – Part 1 - Non-plasma-based Etching and Deposition Processes

12:00 – Part 2 - Plasma-based Etching and Deposition Processes

13:00 – LUNCH

14:00 – [Research talk] “III-V Based Novel Photovoltaics”

A/Prof Stephen Bremner – School of Photovoltaic and Renewable Energy Eng., UNSW

14:30 – LAB-BASED DEMONSTRATIONS

*Registered students will participate in one of the four sessions available**

16:15 – CLOSE

***LAB-BASED DEMONSTRATIONS**

On both DAY 2&3, students will participate in one of the four sessions described below

Session 1: - Photolithography

Location: West white area

Tools: spinner, hotplate, MA6, microscope

Demonstrator: Dr Oleh Klochan

Session 2: - Thin film deposition

Location: West grey & white areas
Tools: PVD75-GP, HHV, Dektak 150
Demonstrator: Pierrette Michaux

Session 3: - Dry etching

Location: Upper East grey area
Tools: Oxford RIE, Dektak 2A
Demonstrator: Joanna Szymanska

Session 4: Chip packaging and bonding

Location: Lower East and West grey areas
Tools: Dicing saw, Al wedge bonder
Demonstrator: Dr Andrew See

LOCATION: G31, Old Main Building, University of New South Wales



Contact information:

Facility Manager
Dr Linda Macks
E: linda.macks@unsw.edu.au

Process Engineer
Dr Andrew See
E: a.see@unsw.edu.au
M: 0414 326 933



[http://www.anffnsw.org/
contact-us/contact/](http://www.anffnsw.org/contact-us/contact/)