



# Particle and Catalysis Research Group Information Session

# Introduction to PARTCAT

- Leading (photo(electro))catalysis research laboratory headed by Professor Rose Amal
  - Location: level 3 TETB building
  - Laboratories: 366 and 367 (Dry lab), 368 (Wet lab), 337 (instrument lab) and 343 (Particle preparation lab)
  - Research areas:
    - Synthesis
    - Functionalisation
    - Characterisation
    - Application
- Novel particles and catalysts  Clean Energy, Environmental remediation, and life science
- Website: <http://www.pcrpg.unsw.edu.au>

# Important people



**Scientia Professor  
Rose Amal**  
Group leader  
ARC Laureate Fellow



**Dr. Mandalena  
Hermawan**  
Research Manager



**Dr. Victor Wong**  
Analytical Support  
Coordinator



# General info and guides

- **Access to building and lab** is restricted from 9am to 4:30pm WEEKDAYS only
- **Computer Lab access:** LG34 and LG35 in lower ground floor TETB (same access as above – when there is no class)

# Thesis information

- Your thesis project is your work and your responsibility
  - Check moodle for the course outline and updates
  - The marking criteria and expectations for your thesis are all there
- Course coordinator: Dr Graeme Bushell ([g.bushell@unsw.edu.au](mailto:g.bushell@unsw.edu.au) )

# Where to start

Lab safety awareness training registration via MyUNSW/ moodle

Collect white folder from level 3 in F10

PartCat induction (contact Victor – discussed later)

Risk management **(specific to your work)**

- SafeSys
- RMF

White folder forms signed off

Return signed documents, printed first page of RMF from SafeSys and

Take completed white folder to Lena

Get lab/s access

# Lab Safety Information and PartCat lab induction



**Dr Victor Wong**

Lab inductions, safety officer, chemical and consumables ordering, general lab needs and issues

v\_wong@unsw.edu.au  
Room 302

# Equipment training

- Our laboratories are equipped with state of the art equipment for particle synthesis and characterisation, advanced analytical instruments as well as variety of catalysis rig and photo-electrocatalyst reactor.
- It is **MANDATORY** for new user to be trained before getting access to the instrument/gear
  - Only happens a few times a semester – plan wisely (ask your supervisors asap what equipment is important to get trained on)
- Trainers can be found here - <http://www.pcrg.unsw.edu.au/resources-and-facilities>

Instrument	Trainer
Auto pipettes	Supervisor
pH meter	Supervisor, Phoebe, Ali
Temperature controlled hot plate and stirrer	Supervisor
Balances	Supervisor, Xiaofeng and Tri
Ultrasonic water bath	Supervisor

# Equipment training

<b>Instrument</b>	<b>Trainer</b>
<b>Ultrasonic probe</b>	Dr Victor Wong (Victor), Dr Kuang-Hsu Wu (Tim) and Cuiyang
<b>Centrifuges</b>	Qingran (Channing) and Jing Lin
<b>TOC</b>	Victor, Ali Asghar Esmailpour Valmazouyi (Ali)
<b>UV Vis Cary (liquid)</b>	Victor, Ali
<b>UV Vis NIR (solid)</b>	Dr Roong Jien Wong (RJ) and Dr Tze Hao Tan, and Constantine
<b>Malvern Zetasizer</b>	Ali and Dr May Lim (May)
<b>BET</b>	A/Prof Jason Scott (Jason) and Dr Emma Lovell (Emma)
<b>Potentiostat - Autolab</b>	Dr Yun Hau Ng and Wu Hao, Zhirun
<b>Potentiostat – CHI instrument</b>	Dr Xunyu Lu and Daiyan
<b>Autochem</b>	Jason and Emma
<b>GC</b>	Jason and Victor
<b>Muffle furnaces</b>	Zhipeng, Xinxin
<b>Horizontal tube furnaces (Carbolite)</b>	Bingqiao
<b>Horizontal tube furnaces (old Labec)</b>	Channing
<b>Horizontal tube furnaces (new Labec)</b>	Daiyan
<b>Oven (including glove training)</b>	Tim and Xiaofeng and Farhan
<b>Rotary Evaporator</b>	Victor and May
<b>Anodisation unit</b>	Zhipeng, RJ
<b>Horiba PL</b>	RJ and Jing Lin
<b>Catalysis Rig (existing or new set up)</b>	Jason and Victor
<b>Cake cutting</b>	Zhirun, Huabo, Jessy
<b>Solvent</b>	Xinxin, Chen Deng, Bingqiao, Sana, Jessy
<b>Gases/Liq nitrogen</b>	Farhan, Bingqiao, Bruce, Yoshi, Tim Zuhrrer, Huabo
<b>MQ water</b>	Caroline
<b>Consumables – CHEM STORE including buckets and chemical drums</b>	Xinxin, Huabo, Bingqiao, Sana, William, and Jessy
<b>Consumables – EXT</b>	Xinxin, Huabo, Bingqiao, Sana, Wang Wei, and Jessy
<b>Fume cupboard</b>	Yoshi and Stephanie Chua, Jenny
<b>TGA</b>	Jonathan and Emma

# Mark Wainwright Analytical Centre

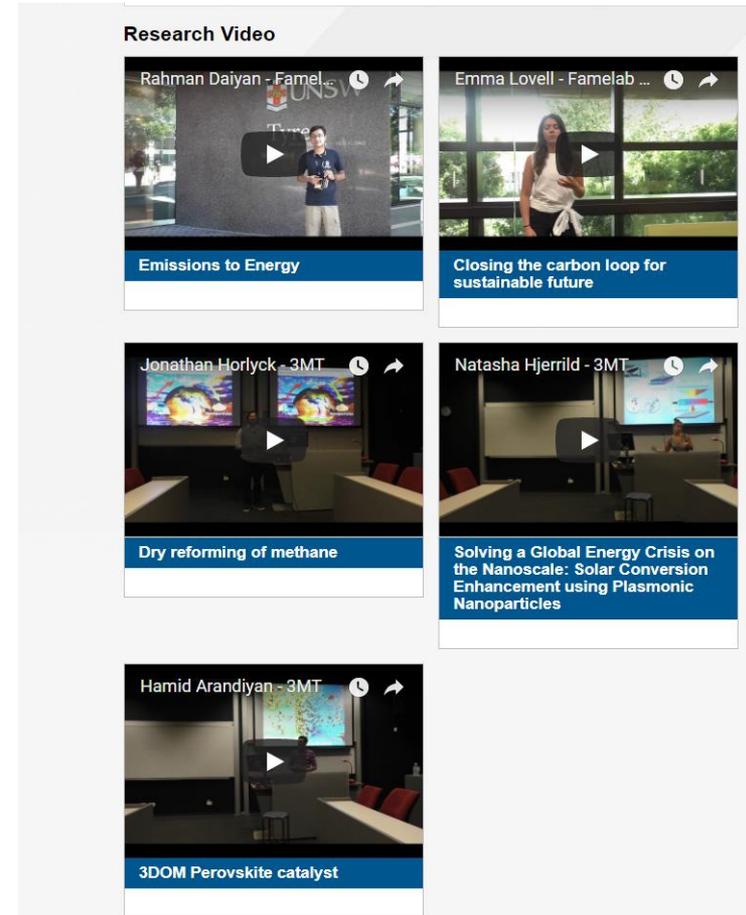
- Available in the Chemical Engineering Building (F10) for equipment that PartCat does not have including:
  - Electron microscopy (SEM and TEM)
  - X-ray photoelectron spectroscopy (XPS)
  - Inductively coupled plasma (ICP)
  - X-ray diffraction (XRD)
  - Nuclear magnetic resonance (NMR)
  - And others..
- Make sure you get supervisor approval before sending samples
  - Lena can provide you with funding codes
  - Your supervisor must sign approval forms prior to Lena (Main supervisor and PostDoc/PhD)
  - XRD and TEM are to be run by your PhD/PostDoc supervisor

# Compulsory lab clean-up

- Held in Weeks 2,4,6,8,10, and 12 from 2 – 3 pm on Tuesday
- Undergraduate students are expected to attend **70%** of the total sessions (minimum 4 sessions) + including 1 Big Lab Clean Up (date will inform later)
  - Failure to comply may result in not having lab access in your Thesis B (for Thesis A students) or not having your lab clean-up sheet signed off (upon Thesis completion)
- Tasks involve tidying up the lab and filling up wash bottles
- Please listen to instructions of the PhD student leader in charge of the session
- Your attendance will be recorded
- If you can't attend a session or have enquiries, please contact Phoebe ([hoi.chung@unsw.edu.au](mailto:hoi.chung@unsw.edu.au)) or Salina ([s.jantarang@student.unsw.edu.au](mailto:s.jantarang@student.unsw.edu.au))

# Group Seminar and 3MP

- Partcat runs a fortnightly group seminar where 1 student will give a full seminar (20-30 minutes) and 2 students/postdocs will give a 3 minute presentation (3MP) about their research or an aspect of their research in front of the group
- **Thursday from 11 am to 12pm in TETB LG05** (every fortnight)
- The first seminar will kick off on **15<sup>th</sup> March 2018** with:
  - Seminar Presenter: **Zhirun Xie**
  - 3MT seminar by **Yoshi** and **Caroline Tian**



# Housekeeping

- Make sure your risk management form stays up to date
  - The RMF should cover the experiments you are running
  - Generic RMFs will **not** be accepted
- Any experiment's left alone **must** have a safety data sheet attached
  - Can be found laminated around the lab or on the share drive:  
<https://onedrive.live.com/?id=3CC2F58E5DD1140A%21184&cid=3CC2F58E5DD1140A>
- Clean up after yourselves and use your common sense
  - If you use the last of a chemical – reorder through Victor
  - If gases/liquid nitrogen/solvent run out let the appropriate people know
  - If you finish consumables replace them (gloves, soap, paper towel, wipes etc.)

# Remember....

- Your supervisor should be your first source of contact for any questions
- If you have any concerns about safety and working in the lab speak to **Victor**
- Lab clean up is compulsory
- You **must** be trained prior to using any lab equipment
- PartCat group seminar is optional (but try and attend a few)
- Get to know the people you are working with (students, PhDs, Post Docs etc.)