



Centre for Rapid Online Analysis of Reactions (ROAR): A major Dial-a-Molecule Success Story

Prof. K. K. (Mimi) Hii
Department of Chemistry
Director of ROAR



Dial-a-Molecule Grand Challenge Institute: A brief history

Where?

Decision taken by Imperial College in 2014 to move Department of Chemistry from SK->WC: opportunity to co-locate

What?

Attended NSF workshop, 'Data-rich Chemistry', Washington DC, 2014 Survey conducted 2015: Identify list of equipment and critical skills

Who?

Stakeholder meeting held 2016: identify stakeholders & their needs

How?

2017: Secured financial support (EPSRC strategic equipment grant) 2018: Hosted DaM Annual Meeting, moved to White City 2019: Facility officially opened

Selected highlights



From the great...



... to the good (outreach)



Collaborations with: Scripps Research Institute (CCHF), University of Pretoria (GCRF), University of Warwick



Workshops

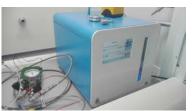


(and even) more visitors

Welcoming users:



Product testing/hosting:



H-Genie



Industrial Projects:

sixfold

Synple

Flagship Facility for Synthetic Chemistry Bridging TRL's, deliver key skills

Engineering

Chemical, Mechanical, Electronic, Material, Informatics.

Physical Sciences

Chemistry, Physics, Mathematics

Life Sciences

SME, Vendor, Multinational



Driving UK academic & industrial leadership

Skills

- Training
- Education
- Highly-skilled scientists

Capability

- New analytics
- New software
- New reaction platform
- New chemistry

Impact

- New medicines & materials
- Greater food yield
- Better processes (cheaper, cleaner, sustainable)
- Technology/knowledge transfer

http://www.imperial.ac.uk/rapid-online-analysis-of-reactions/



Mission:

- > Provide access to hardware/software on site for users
- > Support training courses in key experimental techniques
- > Engaging with partners and stakeholders
- ➤ **Bridge gaps:** Development of next generation synthesis and reaction platforms

Rapid analytics (offline, online, inline)





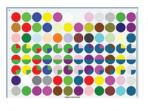


Ben Deadman

Paola Ferrini







Library Studio Design complex, high-throughput experiments in an array-based









Automation Studio Execute designed experiments and integrated analytics

freeslate jr. delivering a plate from shoulder hotel to balance

Batch & Flow reactors







+ much more...

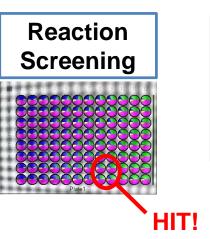
High-throughput experimentation

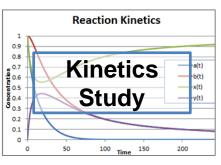
Help name our reactors: **#ROARBOTS**



Facilities to support the following:





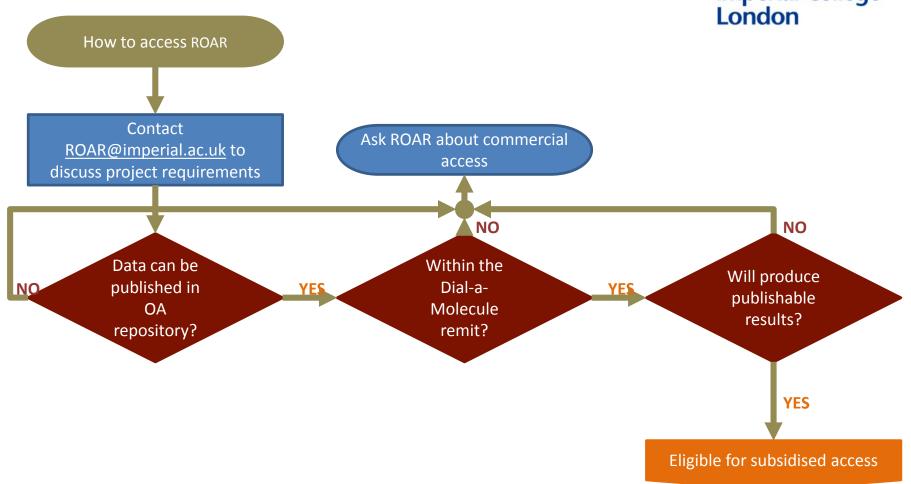




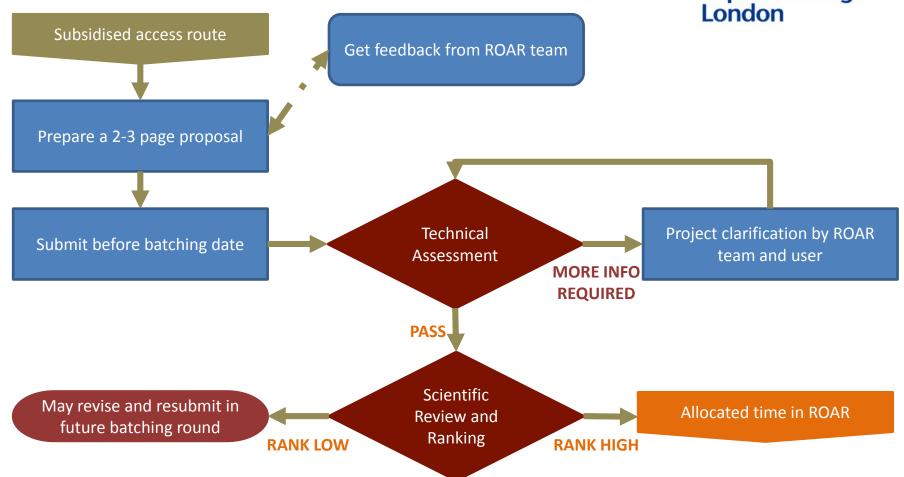
+ New reaction platforms e.g. flow, electro, photo

- Commissioning period 2018
- Phased opened calls (external users) since January 2019.
- All available from August 2019-December 2020

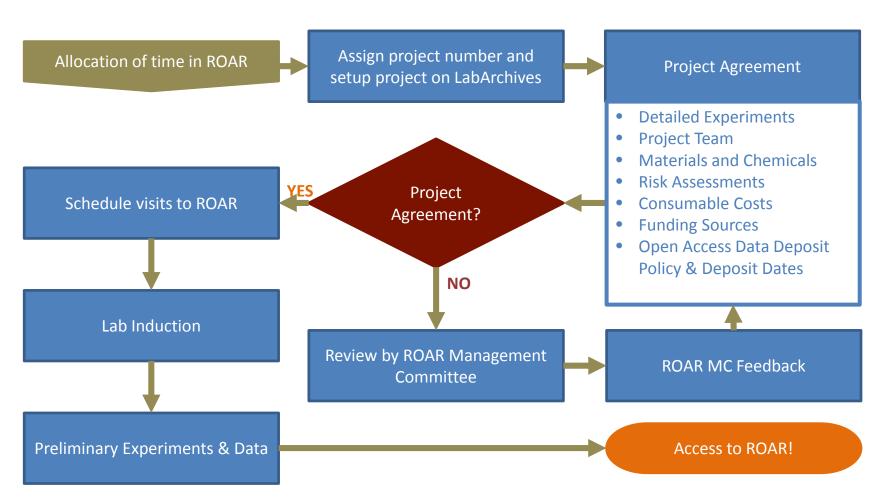




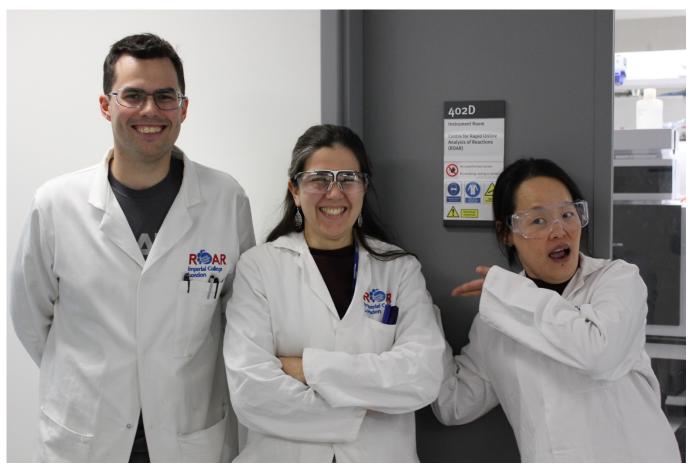












Have a research problem? Come talk to us!!