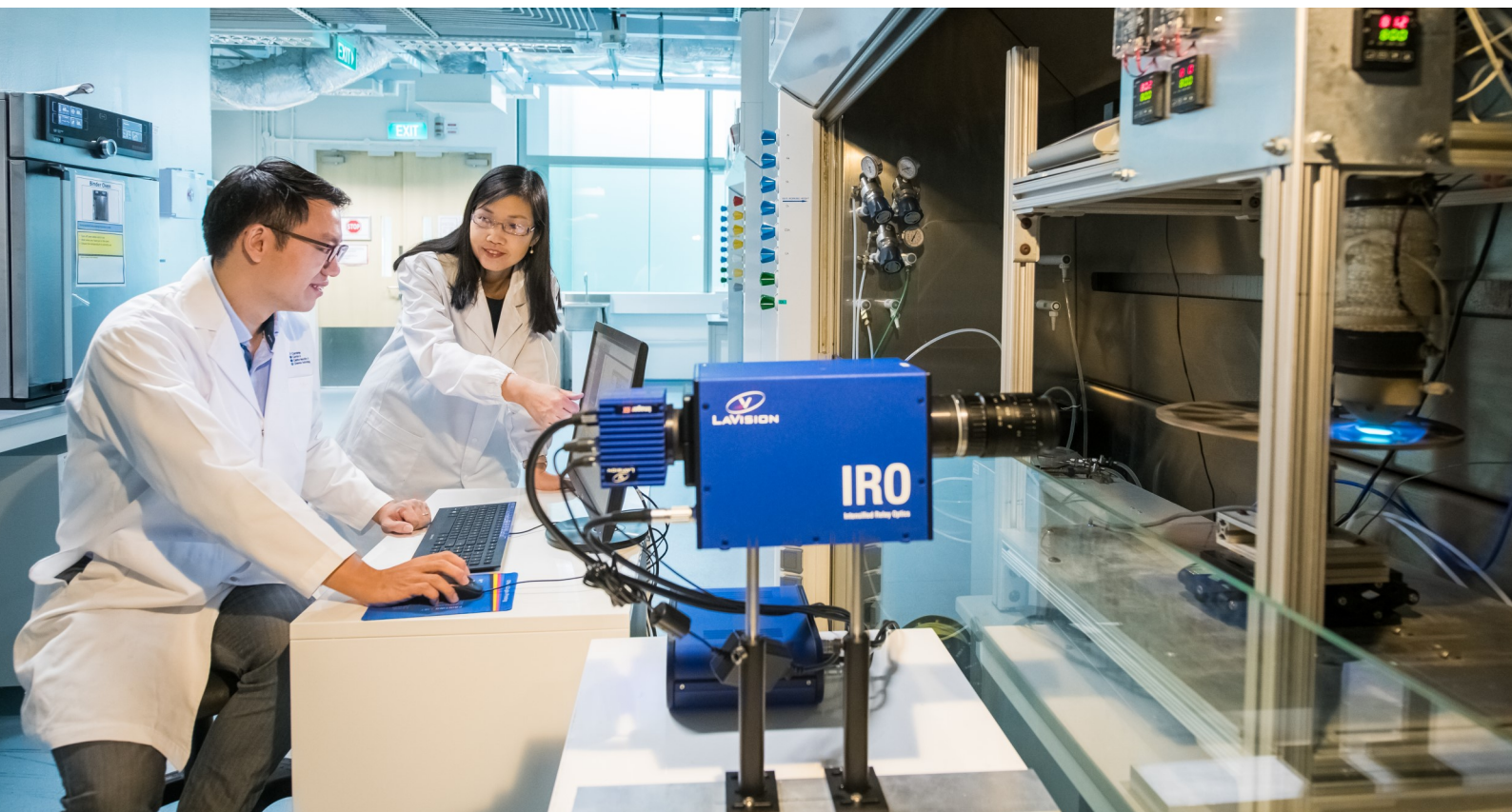




Cambridge Centre for Carbon Reduction in Chemical Technology



Programme Leader



Prof. Markus Kraft
University of Cambridge

Markus Kraft is a Professor in the Department of Chemical Engineering and Biotechnology in Cambridge. He has a strong interest in the area of computational modelling and optimisation targeted towards developing carbon abatement and emissions reduction technologies for the automotive, power and chemical industries.

C4T started in April 2013 and is the first and largest programme of the Cambridge Centre for Advanced Research and Education in Singapore Ltd (CARES). Funded by the National Research Foundation (NRF) under its Campus for Research Excellence and Technological Enterprise (CREATE) programme, this is a collaboration between the University of Cambridge, NTU and the NUS.

Research

The C4T research focus is on minimising the carbon footprint of industrial-scale chemical processes. In particular, the team examines ways of improving energy efficiency and explores strategies for carbon capture and use in the petrochemical and refining technologies. In a wider context,

the assessment and abatement of the carbon footprint of the integrated petrochemical plants and electrical network on Jurong Island in Singapore are addressed.

The six research projects under C4T are:

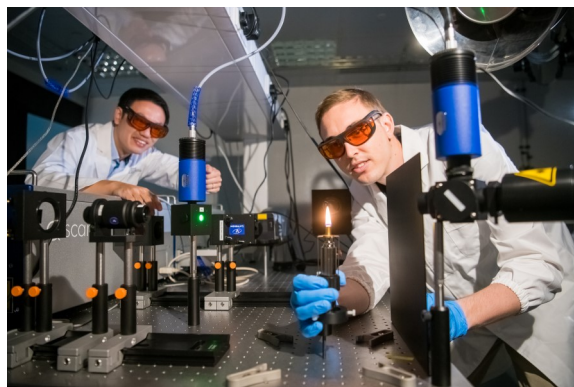
- Sustainable reaction engineering for carbon neutral industry
- Electrosynthetic pathways for advanced low-carbon chemical manufacturing
- Combustion for cleaner fuels and better catalysts
- Better, cleaner heat usage
- Better business – pathways to industrial decarbonisation
- The J-Park Simulator



Researchers

CARES is an international entity with staff members from around the world. Since the programme began in 2013, the size of our team has continued to grow as more scientists and support staff join us at our base in Singapore.

There are currently around 88 researchers in C4T, including Co-Principal Investigators, Research Fellows and PhD students working at the University of Cambridge, Nanyang Technological University and the National University of Singapore. Leading the research teams are a total of 17 Principal Investigators (PIs), five of whom hold appointments at Cambridge, six at NTU and six at NUS. All PIs are well-known experts in their fields.



Highlights

- Four start-up companies have been launched from the C4T programme in the areas of nanomaterials synthesis, the intersection of the electronics and chemical industries, machine learning in reaction engineering and catalyst development.
- An automated chemical route technique developed partially in C4T has helped to identify several new, efficient and green chemical routes for industrial collaborations.
- The J-Park Simulator, a cross-domain modelling and data storage tool for the design, analysis and operation optimisation of eco-industrial parks, has continued to develop and can now be used to model CO₂ reduction tools and scenarios for electrical networks.
- The CARES Laboratories have received the Building and Construction Authority Green Mark Platinum Award.



Our Collaborations

- Established partnerships with industry including BASF, UCB Pharma, Syngenta and Pfizer.
- A studentship scheme that allows students from the University of Cambridge to split their study between Cambridge and Singapore.



For more information about the C4T programme, please visit www.cares.cam.ac.uk or email enquiries@cares.cam.ac.uk.

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