

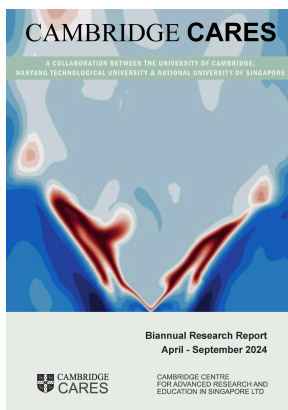


**CAMBRIDGE  
CARES**

**CAMBRIDGE CENTRE  
FOR ADVANCED RESEARCH AND  
EDUCATION IN SINGAPORE LTD.**

**CARES Biannual Newsletter Issue 5, April 2025**

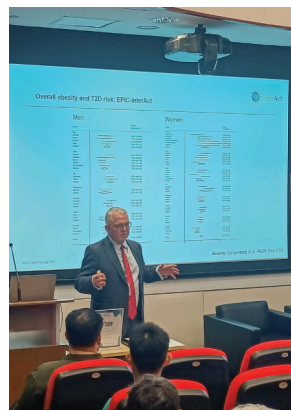
# Highlights



## *Biannual Reports*

Our 21st Biannual Report highlights all research programmes, small projects, and collaborations; including updated publications and a final foreword from our founding Director, Prof Markus Kraft.

[read more >>](#)



## *New public health research*

Health-Driven Design for Cities (HD4) will use SG100K cohort study data to study the built environment's effects on an individual's behaviour and exposure to health risks.

[read more >>](#)



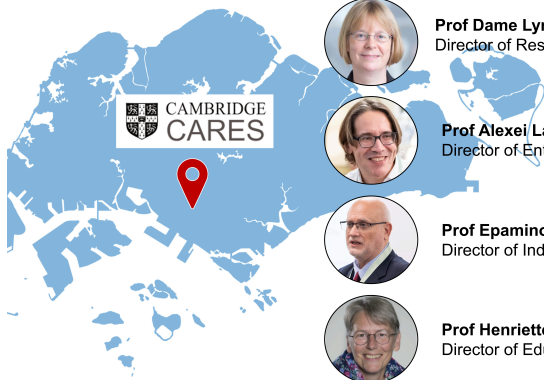
## *DPM Heng Swee Keat visits CARES*

CARES's two newest decarbonisation projects will investigate non-fossil fuel-based pathways for Singapore's chemical manufacturing and energy systems.

[read The Straits Times article here >>](#)

# Acknowledgement

## CARES management



**Prof Dame Lynn Gladden**  
Director of Research and Strategy



**Prof Alexei Lapkin**  
Director of Entrepreneurship



**Prof Epaniondas Mastorakos**  
Director of Industrial Relations



**Prof Henriette Hendriks**  
Director of Education and Skills



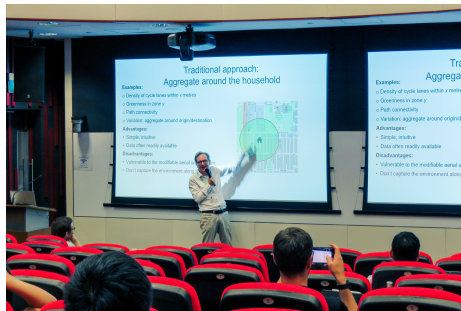
**Elizabeth MacRae**  
Chief Operating Officer

We would like to acknowledge our founding Director, Prof Markus Kraft, for his outstanding contribution to building CARES as a collaborative research platform from 2013 - 2024. As we bid farewell to Markus, who has moved on as a visiting Professor at MIT, we welcome familiar faces to our new Management Structure since 1 January 2025. Liz remains the first point of contact for all management queries.

# Outreach & Engagement



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**Top:** CARES [hosted a group of participants from the Global Young Scientists Summit \(GYSS\)](#) in January 2025. Two CARES researchers were also nominated to attend the prestigious summit.

**Middle left:** Dr Kastoori Kalaivanan from the [Centre for Lifelong Learning and Individualised Cognition \(CLIC\)](#) programme presented at a joint seminar "Deep dive into Singapore's Education Research Landscape" with other CREATE entities and the Ministry of Education in Singapore.

**Middle right:** Academics and agencies attend the first seminar hosted by the new [Health-driven design for cities \(HD4\) project](#). Prof James Woodcock presented a seminar exploring the future of urban health with agent-based modelling and Dr Thomas Burgoine, lead for stakeholder engagement, facilitated discussion.

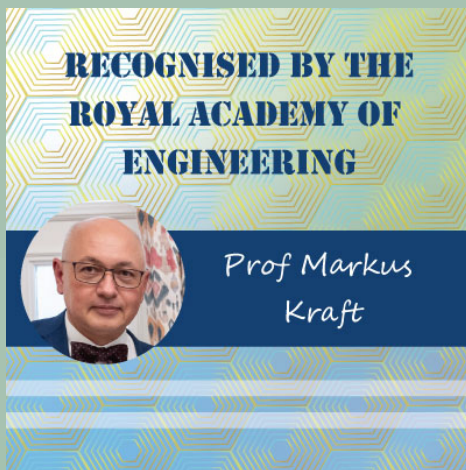
**Bottom left:** Representatives from HD4 met with Environment Agency-Abu Dhabi (EAD) for an introductory meeting. Her Excellency Dr Shaikha Salem Al Dhaheeri, Secretary General of the EAD presented CARES with a token of appreciation.

**Bottom right:** CARES [exhibits its second year at Singapore Maritime Week 2025](#), meeting familiar faces and establishing new connections.

# Congratulations

## Prof Markus Kraft

Elected as a new Fellow of the Royal Academy of Engineering for his expertise in combustion and knowledge engineering.



## Prof Victoria Leong

New position at NTU as the Associate Dean for Outreach & Partnerships in the Graduate College.





## CLIC joins CREATE

CARES initiated a joint coffee morning between the decarbonisation and CLIC researchers, with CLIC having recently moved to the same building (CREATE) as CARES.

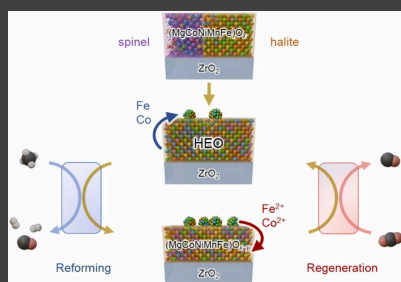


## Cambridge Comms visit

Jacqueline Garget from the central Cambridge Research Communications office visited CARES to share knowledge, strengthen ties, and better understand CARES' research.



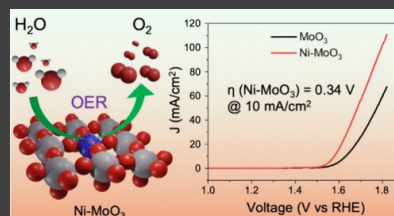
## Publications



### Halite-structured (MgCoNiMnFe)O high entropy oxide (HEO) for chemical looping dry reforming of methane

Shao Yu, Wu Chao, Xi Shibo, Preston Tan, Wu Xianyue, Syed Saqline, and Liu Wen

This paper demonstrates that (MgCoNiMnFe)Ox high entropy oxide serves as an effective redox catalyst and oxygen carrier, enhancing dry reforming of methane performance and stability in



### Robust Oxygen Evolution on Ni-Doped MoO<sub>3</sub>: Overcoming Activity–Stability Trade-Off in Alkaline Water Splitting

Ankit Kumar Verma, Shahan Atif, Abhisek Padhy, Tej Choksi, Prabeer Barpanda, and Ananth Govind Rajan

This paper advances Ni-doped MoO<sub>3</sub> as a promising water-splitting electrocatalyst, providing new insights into its oxygen evolution reaction (OER) mechanism and stability in alkaline media.

[Read the paper.](#)



chemical looping processes.

[Read the paper.](#)

CARES is open to collaborating with new partners and projects. Please see our [Careers page](#) for a list of opportunities or email [enquiries@cares.cam.ac.uk](mailto:enquiries@cares.cam.ac.uk)

Thank you for reading this #CambridgeCARES newsletter, follow our social channels for any updates!



LinkedIn YouTube Website



### Harnessing street shade to mitigate heat stress: An in-situ parallel investigation under extreme heat conditions in tropical Singapore

*Lei Xu, Ronita Bardhan, Hao Mei, Srilalitha Gopalakrishnan, Xing Zheng, and Thomas Schroepfer*

This paper explores the cooling efficacy of diverse street shade types in mitigating urban heat, thereby facilitating cities and their residents' adaptation to climatic shifts. [Read the paper.](#)

CARES was established in 2013 in Singapore and is the University of Cambridge's first research centre outside the UK.

- Flagship C4T programme on decarbonisation
- CLIC studies cognitive flexibility throughout the life course
- HYCOMBS studies hydrogen and ammonia combustion
- SM3 will investigate ways to shift the chemical industry to a more circular model
- HD4 will explore public health and the built environment in Singapore
- AMPLE scales up nanomaterial production
- PIPS is an industry-funded project for pharmaceutical manufacturing

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