

## [ice-Link Newsletter No. 1& 2 \(Jan 2024 to Dec. 2024\)](#)

- The consortium held the kick-off meeting in January 2024.
- Two deliverables were prepared and submitted: “Data Management Plan” and “Plan for dissemination and exploitation, including communication activities” in June 2024.
- Two PhD students (Meina Zhang and Binhang Zhao) from Liverpool University (UK) visited Cerca Trova in August, 2024. The team worked on ice-templating technologies, process control, modelling, etc. The PhD students presented their current research to the team from Cerca Trova. Training and knowledge sharing was thoroughly given from the host to the secondees on research in industrial practice, enterprise and business management.
- PhD Student (Tam Kaid) from Liverpool John Moores University visited Cerca Trova (August-September). He presented his work on Data-led analysis of complex material structures through feature based modelling at the “Innovation, Materials & Sustainability” Workshop.
- Prof. James Ren from Liverpool John Moores University visited YILDIZ TECHNICAL UNIVERSITY (July 2024) and Cerca Trova (August-September 2024). The visit covered meeting with the hosts and discussion on recent developments in thermal engineering, cooling technologies, and high-performance thermoelectric. Prof. Ren visited several groups at YTU including Thermal engineering, Materials and Manufacturing. Prof. Ren held also talk with the student Formula team. During his visit at Cerca Trova, Dr George Katranas and Prof. Ren also shared their experience in Education and knowledge sharing.
- A researcher from Cerca Trova visited Liverpool John Moores and University of Liverpool. The main work has been focused on material development, cooling technologies, process control. The visitor and LJMU team also shared their experience in Education and knowledge development in different industries. He visited the Department of Chemistry at UoL. He had a talk with Dr Zhang about project progress, sustainable research project, and possible education exchanges. He was shown around in Zhang’s lab, the Department of Chemistry, and Materials Innovation Factory to see research facilities, advanced characterisation facilities and the materials discovery establishment. He shared his research and enterprise activities with several PhD candidates, postdoc and academics at the two Universities.
- Prof. Kazi Md Salim Newaz, Khan Wajahat Ahmed and Shaikh Kaleemullah completed their secondment at Accent Pro 200 SRL (November -December 2024). The team works on imaging, X-ray tomography data analysis and material characterisation. The team attended an introductory lecture delivered by the Director of Accent Pro. The

joint work covered many different areas including understanding the operating principles and limitations of the imaging machine, machine learning, deep learning, and image classification. Accent Pro organised the visit to the National Institute for Laser, Plasma, and Radiation Physics. A detailed discussion was held regarding potential joint research, collaboration opportunities, and the use of the faculty's facilities. The Vice-Dean and an Emeritus Professor presented an overview of the research and services offered by the faculty. The visiting team presented their research conducted in Computational Fluid Dynamics (CFD) and fouling and corrosion laboratories and other laboratories within the Department of Mechanical Engineering at University of Malaya. ISSMC delivered an invited seminar on ice-templating. LJMU also discussed works with the team on modelling and potential route to develop nano particles form ice-templated structures.

- Prof. Reungruthai Sirirak from the University of Phayao (Thailand) delivered an invited seminar titled "Nanomaterial Synthesis from Agricultural Waste: Graphene-Based Catalysts for Fuel Cells and Water Treatment Applications" to the entire Institute on October 29<sup>th</sup>.
- Dr. Simone Casadio, a postdoctoral researcher from ISSMC (CNR, Italy), visited the University of Malaya from June to July. During his stay, Dr. Casadio collaborated with the Malaya team on the design and synthesis of activated carbon-metal oxide nanocomposites for heat exchanger applications. Similarly, Dr. Andrea Bartoletti, a postdoctoral researcher from ISSMC (CNR, Italy), visited the University of Liverpool in August. Dr. Bartoletti worked with the Liverpool team on applying and optimizing the ice-templating process for materials used in energy applications. Dr Bartoletti was able to explore /see the research facilities in the Department of Chemistry, Materials Innovation Factory and the culture and life in Liverpool. Dr Bartoletti was given the full safety and lab induction. He had regular meetings/presentations to discuss project development, expertise in both institution, and future research collaborations. Dr Bartoletti combined his expertise and the facilities at UoL to investigate how different freezing process and formulations could be used to produce advanced porous ceramic materials for hydrogen separation membranes.

**PhD completions:** Dr Meina Zhang, Preparation of Porous and Nanofibrous Biomaterials for Controlled Release of Small Molecules and Protein Drugs. (Supervisors: Dr Haifei Zhang, Department of Chemistry, University of Liverpool). (September 2024)

### **Joint Project and Funding**

- LJMU and University jointly secured a VC scholarship from Liverpool John Moores University, the candidate was a former MSC student from UoM.