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UCT scholars join global leaders to discuss roadmap to the decarbonisation of concrete

A team of scholars from the University of Cape Town (UCT) was among a network of 450 scientists and industry leaders around the world which met in Lausanne, Switzerland last week to drive forward critical research into making concrete – the world’s most used human-made material – net zero.

These leading academics and industry players took part in the Innovandi Global Cement and Concrete Research Network (GCCRN) annual gathering to drive decarbonisation of the world’s most used man-made product.

UCT, through its [Concrete Materials & Structural Integrity Research Unit](#) (CoMSIRU), was represented by Emeritus Professor Mark Alexander and PhD scholar Ms Areej Gamielien. Ms Gamielien made a presentation on her current research that addressed recycling Construction and Demolition Waste into useful materials. Her research is supervised by Professor Hans Beushausen, with Alexander as co-supervisor. CoMSIRU is the only African entity represented in the GCCRN.

Professor Alexander said: “This gathering brought together top researchers and research students from around the world, to deliberate on how to make cement and concrete – among the most environmentally impactful materials in the world – more suitable for construction moving into the future with the goal of net-zero carbon by 2050.”

The network brings 450 researchers and scientists from more than 40 world leading universities and academic institutions, together with business-leaders from some of the industry’s top manufacturers and suppliers. They collaborate on critical research and initiatives focused on achieving net zero concrete, in line with the Global Cement and Concrete Association’s (GCCA) 2050 [Roadmap](#).

Concrete is an essential material, vital for modern infrastructure, including homes, hospitals, bridges, tunnels, roads and so much more. But because it’s so widely used, it currently accounts for 7% of the world’s carbon emissions.

During Spring Week, attendees exchanged ideas, conducted workshops, reviewed progress and discussed next steps for ongoing and future research.

Universities attending included the renowned EPFL (Swiss Federal Institute of Technology) in Lausanne, which hosted the event, researchers from South East University and Wuhan University in China, University of Toronto, Indian Institute of Technology in Delhi, UCT, Imperial College London and the University of São Paulo.

Claude Loréa, Cement, Innovation and ESG Director at the GCCA, said: "Innovation, collaboration and research are all vital to helping our industry decarbonise, in line with the GCCA's Net Zero Roadmap. And our Spring Week gathering – our biggest yet – provided the key opportunity for our industrial and academic partners to meet face-to-face with PhD students, postdocs and researchers from all over the world. This amazing global community is coming together with one focus in mind – to decarbonise the world's essential building material, concrete."

Research topics discussed during the week included the use of AI in decarbonisation; new materials and processes for manufacturing cement, including sourcing and improving the use of alternatives to clinker (the most carbon intensive element of the manufacturing process), as well as further development on the use of calcined clays; concrete recycling; the use of renewable energy and kiln electrification; and further development of carbon capture, use and storage (CCUS).

Dr Davide Zampini, Vice-President of Global Research and Development at CEMEX, and the GCCRN's Industrial Chair, said: "If we are to reach our goal of net zero concrete by 2050, then we cannot do so alone. We need to explore as well as harness solutions and collaboration well beyond our industry. That's why Spring Week is so important."

To coincide with the Spring Week gathering, the GCCA also launched a new [online library](#) of Innovandi GCCRN projects, to provide transparent tracking of research progress.

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