



A short report of the 2024 Net-Zero Future Conference

Introduction

The first Net-Zero Future Conference took place from Wednesday, 19th to Friday, 21st June 2024, at the Soria Moria Hotel in Oslo, Norway. This was the inaugural conference of a new conference series that will be organised every year by five academic partner institutions representing five countries, i.e., Oslo Metropolitan University (OsloMet–Norway), Iowa State University (ISU–the USA), Technical University of Darmstadt (TUD–Germany), University of Cape Town (UCT–South Africa), and Indian Institute of Technology Kanpur (IITK–India).



Representatives of the five academic institutions of the Net-Zero Future project. From the left: Prof. Samit Ray Chaudhari, IIT Kanpur, Prof. Mahdi Kioumars, OsloMet, Chair of the 2024 conference, Prof. Hans Beushausen, UCT, Prof. Eduardus Koenders, TUD, and Prof. Behrouz Shafei, ISU, Chair of the 2024 conference.

The inaugural Net-Zero Future Conference was an international event dedicated to advancing research, innovation, and collaboration in pursuing a sustainable and net-zero carbon built environment. After completing a peer-review process, all accepted full-text papers from the conference have been slotted to be published in the [Lecture Notes in Civil Engineering](#), an academic book series published by Springer.

Program and keynotes

The first day offered:

- Opening remarks, during which Prof. Mahdi Kioumars (OsloMet) and Prof. Behrouz Shafei (ISU), Conference Chairs, provided insights into the mission and vision of the Net-Zero Future Conference series and its associated international alliance.
- A presentation by Prof. Hans Beushausen, UCT, RILEM DAC Chair, sharing the main features of the RILEM Association.
- A keynote lecture by Prof. Mette Geiker, Norwegian University of Science and Technology (NTNU), titled “*Durability design and sustainability of concrete structures*”.
- A keynote lecture by Prof. Karen Scrivener, École Polytechnique Fédérale de Lausanne (EPFL), titled “*Reaching net zero for cement-based materials*”.
- A panel discussion involving lead academic and industry representatives on “*Towards net-zero construction: Challenges and innovations*”.



The rest of the day continued with 6 parallel sessions, each in 3-time blocks, where more than 100 contributions were presented, with topics that ranged from “Digitalized and Sustainable Construction Project Delivery” to “Circular Economy and Waste Management”, to mention a few.



From the top left, in clockwise direction: Prof. Hans Beushausen, Prof. Mette Geiker, Prof. Karen Scrivener, a moment of the panel discussion.

On day 2 of the conference, the following keynote lectures were delivered:

- A keynote lecture by Prof. Behrokh Khoshnevis, University of Southern California (USC), titled “*Birth, growth, and impacts of construction-scale 3D printing*”.
- A keynote lecture by Prof. Ueli Angst, Eidgenössische Technische Hochschule (ETH) Zürich, titled “*Revolutionizing condition diagnosis and predictive forecasting: Synergizing sensors, robots, artificial intelligence, and predictive modelling*”.
- A keynote lecture by Mr. Daniel Kjørberg Siraj, OBOS, titled “*OBOS - Building for a greener future*”.
- A keynote lecture by Ms. Helle Redder Momsen, Nordic Sustainable Construction Sustainability, titled “*The collaborative efforts of Nordic countries to reduce climate and environmental impact from construction.*”

The afternoon continued with 2-time blocks of 6 parallel sessions in each, where more than 70 contributions were presented.

Day 3 of the conference offered the following keynote presentations:

- A keynote lecture by Prof. Sriram Narasimhan, University of California, Los Angeles (UCLA), titled “*Robots and sensors for safer and more sustainable infrastructure*”.
- A keynote lecture by Mr. Tor Gautestad, Brevik CCS, titled “*The very first full-scale carbon capture plant in the cement industry – soon ready for commissioning*”.

The morning continued with the final 6 parallel sessions, concluding over 200 oral and 20 poster presentations made during the three days of the conference.



Students Awards

The 2024 Net-Zero Future Conference recognized the following exceptional students selected based on their oral presentations with a 1-year free RILEM membership:

- Ruijia Wu, presenting *Design and construction of the world first six-story tall engineered bamboo building*
- Kareem Abushama, presenting *Optimizing the embodied carbon of concrete, timber, and steel piles with a case study*
- Ziyang Li, presenting *Harnessing recycled materials: development of a one-part geopolymer binder from calcined clay and carbide sludge*
- Jéssica Deise Bersch, presenting *Marine-based photocatalytic protection of building envelopes on behalf of climate change*
- Francesco Nigro, presenting *Genetic algorithms for minimizing material usage in seismic upgrading of existing RC structures*
- Mohammad Haseeb Qureshi and Sarosh Raja Nawaz, presenting *Assessment of the structural potential of nonconventional material alternatives in shear walls*
- Qiling Wang, presenting *Temperature-dependent dual-operation mode for energy tunnel integrated with phase change materials in geothermal environment*
- Callum White, presenting *Fresh state properties of conventional range concretes containing blast furnace slag*
- Areej Gamieldien, presenting *Review of South African waste management practices and its integration into the construction industry.*

Social activities

RILEM, one of the conference's co-sponsors, had a desk in the conference venue where some recent RILEM/Springer publications were presented to the conference participants. The delegates were invited to enquire about the possibility of joining a RILEM technical committee, downloading a RILEM publication, and benefiting from other resources offered by RILEM.



The RILEM desk at the conference venue.

The conference's opening ceremony was held at the Oslo City Hall. This ceremony provided an excellent opportunity to network and meet fellow participants. The gala dinner was offered aboard the environmentally conscious Legacy of the Fjords, an all-electric fjord cruise vessel. The delegates sailed through the stunning Oslo Fjord while chatting and having dinner.



On the left, a view of the harbour in the heart of Oslo, near the iconic Opera House, where the delegates embarked; On the right, the delegates at the harbour.



Net-Zero Future 2024

19-21 June 2024, Oslo, Norway



Next event

The next Net-Zero Future Conference awaits you in Cape Town, South Africa, from 5th to 7th November 2025! The call for abstracts will open on 1st September 2024 and will remain open until 31st January 2025.

