

## **Superconducting Technologies for Cleaner and Sustainable Future**

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***Abstract*** — Superconducting technologies are ready to be scaled up and deployed in diverse applications beyond their present usage (MRI, NMR, and physical sciences and engineering). Superconductivity has the potential to provide means towards zero-emission targets, enabling extensive usage of wind power generation, facilitating zero-emission transportation, realising robust and resilient electricity, enabling fusion power, superconducting quantum computing, water purification, new medical diagnosis and therapy tools, and new scientific breakthroughs.

To realise the potential of superconductors in addressing our societal future needs as identified in the United Nations' 17 Sustainable Development Goals (SDGs, also called the Global Goals) will require new thinking and innovations on how to deploy superconducting technologies and translate it into successful market applications.

This talk will present an update on achievements in superconducting applications and introduce a new initiative on superconductivity for a cleaner and sustainable future and address the global targets for decarbonation.

***Keywords (Index Terms)*** — Superconductivity, Superconducting Applications, Superconducting Materials, Superconductivity for The Future, Carbon Emission, Sustainable Development Goals, Power Applications, Healthcare Applications, Quantum Technology Applications, Smart Science

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