

ASEMD 2020—Introduction

THE 2020 IEEE International Conference on Applied Superconductivity and Electromagnetic Devices (ASEMD), the 6th in its series, was held online during October 16–18, 2020, as a virtual conference due to COVID-19.

The previous IEEE ASEMD Conferences were held in Tianjin, China, during April 15–18, 2018; Shanghai, China, during November 20–23, 2015; Beijing, China, during October 25–27, 2013; Sydney, Australia, during December 14–16, 2011; and Chengdu, China, during September 25–27, 2009, respectively.

Applied superconductivity can be broadly categorized into materials, electrical, and electronic sections. Large-scale applications of applied superconductivity are generally related to superconducting materials, magnets, power devices, machines, control and measurement devices, and therefore are essential components comprising one principal part of the ASEMD scope. Electromagnetic devices, the other principal part of the ASEMD scope, cover electric, magnetic, and electronic devices, either superconducting or non-superconducting. This part also includes works on electromagnetic device design, analysis, measurement, and automation. High-temperature superconducting (HTS) electromagnetic devices have become applicable for large-scale devices and practical industrial or commercial applications, forming the third essential phase of HTS development, following the development of applicable HTS materials as the first phase and verification of prototype devices as the second phase, towards a wide range of industrial and commercial applications of HTS materials and devices.

In addition to the principal scope of electromagnetic devices, ASEMD 2020 has special focuses on 1) superconducting magnets and their applications in strong magnetic field and large-scale devices; 2) HTS smart power and energy devices and grids; 3) HTS Maglev; and 4) commercial superconducting wires.

IEEE ASEMD conferences are devoted to providing researchers in the field of applied superconductivity and electromagnetic devices with a platform for technical communications, discussions, information exchanges, and progress updates. The ASEMD 2020 conference invited more than 30 plenary and keynote speakers to address its principal focuses, while it had over 300 participants from 16 countries and 350 manuscript submissions.

ASEMD 2020 authors were invited to submit more extensive papers to form this Special Issue of the IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY. The 286 articles in this volume, accepted through the journal standard peer-review process, well represent the spectrum of topics covered at the ASEMD 2020 conference.

Substantial contributions from the ASEMD members and collaborations with numerous universities, research institutes, and industrial partners are integral to sustaining the IEEE ASEMD. The support from the IEEE through its China Council and Beijing Section ensured the success of ASEMD 2020. ASEMD is grateful to the IEEE Council on Superconductivity, and the editorial and publication teams of IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY for the accomplishment and publication of this special issue.

Prof. Jian Xun Jin
Chairman of Conference Committee, IEEE ASEMD 2020

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