ICEM2020 – Gothenburg, Sweden, August 23-26, 2020

Special Session on

# High Efficiency Electrical Machines: Innovative Materials, Design, Measurement and Manufacturing Techniques

Organized and co-chaired by:

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# Call for Papers

Pollution reduction constraints and green house gas emission regulations have resulted in important research for energy efficiency improvements including electrical machines efficiency and creating respective classes such as Super Premium Efficiency (IE4) and Ultra Premium Efficiency (IE5). Moreover, electrification of transportation means contributed to large production of electrical machines requiring continuous increase of high efficiency, by exploiting developments of advanced materials, innovative configurations, appropriate converter control, ceramic and magnetic bearings in conjunction with high speed operation, suitable measurement techniques, as well as manufacturing technologies. This special session is dedicated to all aspects of research on materials, design particularities, construction techniques and measurements on high efficiency electrical machines. To that respect papers dealing with the research, application and manufacturing of constitutive parts, design and operation of high efficiency machines are welcome.

Topics of interest include, but are not limited to:

- Thin iron laminations and low loss alloy magnetic steels implemented in electrical machine cores..
- Winding configurations and cooling techniques for high efficiency.
- Permanent magnet materials and associated loss reduction techniques.
- Harmonic losses and converter control enabling high efficiency drives.
- Ceramic and electromagnetic bearings for high speed high efficiency machines.
- Machine topologies and design considerations favoring high efficiency machines.
- Measurement techniques for high efficiency machines.
- Lamination cutting and core building factor loss reduction methods.
- Manufacturing techniques and technologies implemented in high efficiency machines.

**Submission of papers**: deadline follows the deadline for the regular papers.
All the instructions for paper submission are included in the conference website:
http://www.icem.cc/2020