



ICEM2022 – Valencia, Spain, September 5-8, 2022

Special Session on

Innovative magnetic materials and 3D printing for electromagnetic devices

Organized and co-chaired by:

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Call for Papers

Over recent years the electromagnetic devices design has been deeply influenced by the availability and always more frequent adoption of new magnetic materials and new manufacturing thanks the 3D printing. First deep innovations are nowadays at disposal on both soft and hard magnetic materials: on one side the so called Soft Magnetic Composites (SMC), and on the other the bonded magnets. SMCs, constituted by iron particles covered with binders to provide eddy currents insulation and mechanical strength, make possible to replace the traditional laminated steels and realize new magnetic shapes; bonded magnets can represent a valid compromise between cheap ferrites and performing sintered magnets. A lot of research is being carried out to develop the cited innovative materials, to provide specific methodologies for their characterization and to adopt them in the realization of electric machines prototypes. Moreover the 3D printing technologies are now well adapted to use new materials and permit to extend the field of innovative structures of machines by manufacturing more complex geometrical pieces. Coils, permanent magnet and specific alloys are now available by the 3D printing. The characteristics of those materials can be adapted to the specific requirements of the applications by varying the composition. This Special Session welcomes research papers showing studies on innovative magnetic materials and 3D printing, their characterization and adoption in the realization of electromagnetic devices.

Topics of interest include, but are not limited to:

- Innovative magnetic materials
- Soft Magnetic Composites (SMC)
- Magnetic losses identification and separation
- Bonded magnets
- Magnets characterization
- Magnetization pattern
- Novel electrical machine topologies adopting innovative material
- Prototypes realization and testing
- 3D printing

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/2022>