

TUTORIAL 3

“3D Printing for Next-Gen Electrical Machines: Magnetic Materials, Windings, Thermal Management, and Electrical Insulation”

Sunday, May 18
8:00AM - 11:30AM
Room: Magnolia 3



SPEAKER

Dr. Ahmed Selema

USP3D - Ghent University

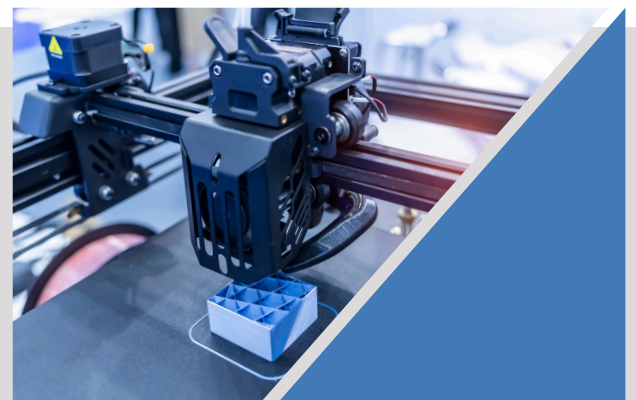


SPEAKER

Prof. Dr. Peter Sergeant

Ghent University

This tutorial aims to explore the advancements and challenges in the manufacturability of electrical machines through the integration of 3D printing technology. The utilization of additive manufacturing (AM) technology in electrical machines has revolutionized the traditional manufacturing process, offering new design freedoms, enhanced material options, and the potential for complex geometries. This session seeks to bring together researchers and practitioners to share their latest findings, theoretical advancements, and practical insights in the realm of 3D printing technology applied to electrical machine design and manufacturing.



BIOS

“3D Printing for Next-Gen Electrical Machines: Magnetic Materials, Windings, Thermal Management, and Electrical Insulation”



SPEAKER

Dr. Ahmed Selema
Ghent University



SPEAKER

Prof. Dr. Peter Sergeant
Ghent University

Dr. ir. Ahmed Selema is a visionary innovator in smart and sustainable manufacturing technologies driving the future E-mobility. With over a 10 years of experience in electrical engineering, his career spans academia and industry, progressing from an engineer to academic staff and into industrial research and innovation. In 2020, he joined the electromechanical engineering from Ghent University, Ghent, Belgium where he received his Ph.D. degree. As an industrial research engineer at the Electrical Energy Lab (EELab), he has worked closely with leading industrial partners across Europe. He is also a Corelab Member in Flanders Make, the strategic research center for the manufacturing industry in Flanders, Belgium.

Currently, he works as technology director of USP3D, a spinoff from Ghent University (www.usp3d.be), where he leads the development of 3D-printed aluminum windings for electrical machines known for their market-leading efficiency, power density, and sustainability.

With a strong background in electrical engineering and additive manufacturing, Ahmed has been at the forefront of developing next-generation technologies for high-efficiency electrical machines. His expertise extends to pioneering manufacturing processes, including several technological contributions in the area of electrical machines and drives, thermal management, and, material engineering, 3D Printing.

Prof. Dr. Peter Sergeant received the M.Sc. degree in electromechanical engineering and the Ph.D. degree in engineering sciences from Ghent University, Ghent, Belgium, in 2001 and 2006, respectively. He became a Post-Doctoral Researcher at Ghent University in 2006 (Post-Doctoral Fellow of the Research Foundation-Flanders). Since 2012, he has been an Associate Professor at Ghent University. He is currently a Professor of electrical drives at Ghent University and the head of electrical machine research group affiliated to Flanders Make Core Lab. His current research domain is electrical machines and drives for industrial and for sustainable energy applications.