

VIRTUAL SEMINAR Thursday, 07.01.2021 at 13:00

Rapid sintering of Nd-Fe-B permanent magnets for energy-conversion applications Dr. Tomaž Tomše, Jožef Stefan Institute

The world is progressively shifting from a fossil-fuel-based energy-and-transportation system to more environmentally friendly and energy-efficient technologies. The transport sector that is still largely based on combustion engine technologies presents a quarter of Europe's CO₂ emissions. The production of green energy and efficient conversion of electric energy to mechanical motion are both equally important for the electrification of the transport. The progress in the development of electric motors and generators (notably offshore wind turbines), especially regarding the strong magnetic fields that are required for the energy conversion, will undoubtedly play a crucial role in the e-mobility evolution. The inability to freely tailor the magnet's microstructure, chemical composition, and geometry when adopting the matured magnet production routes (i.e., conventional powder metallurgy) severely hinders the development of permanentmagnet electric devices. We offer new and highly innovative approaches towards the net-shape manufacture of advanced permanent magnets. The sintering strategies Nd-Fe-B presented in this seminar are based on rapid heating enabled by the spark-plasma sintering (SPS) technique.

Kindly invited.