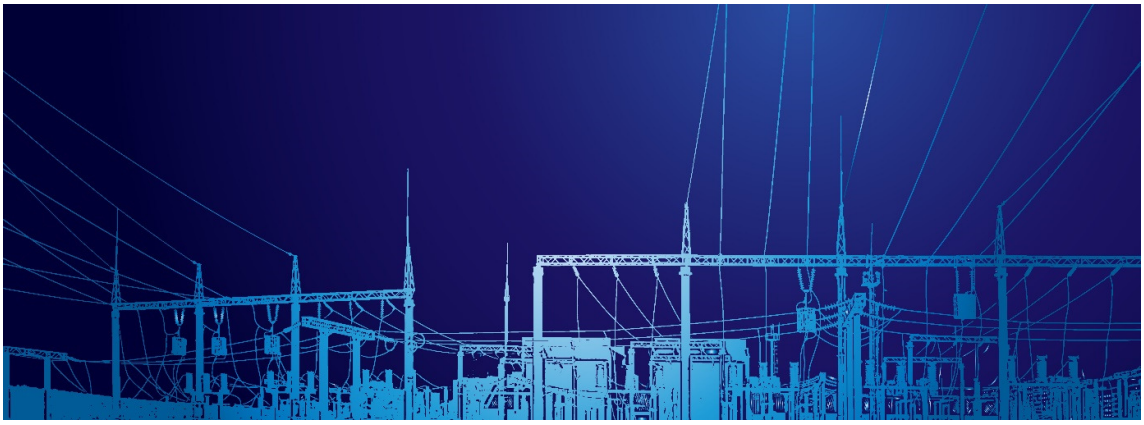
Transformers
MAGAZINE

Scope of Special Edition on Superconductivity



Transformers Magazine cordially invites all interested parties including academic researchers, professional engineers, electrical utilities and consultants, as well as component and tape/wire manufacturers to take part in our **Special Edition** issue focusing on **Superconductivity for power network applications**.

Transformers Magazine is a publication specializing in the transformers industry, manufacturer, research, and the market, with particular focus on green solutions, and solutions for novel technologies, as well as smart grid. We nurture a scientific approach to the scope of interest and our technical and business articles are recognized by their wide-spread readership between professionals as well as their professional and graphical excellence.

Electric power system is one of the most important infrastructure in modern society. Applied superconductivity offers huge opportunities for optimization and modernization of the whole energy and power system for making it more efficient, compact, smarter, reliable, lighter, and sustainable, and environmentally friendly by using physical essence and attribute of superconductors and implementing them into the products. The success of superconductivity, however, depends on the overcoming challenges such as initial purchasing cost, as well as technical issues.

Superconductors, especially high-temperature superconducting coated-conductor tapes offer high throughput with much higher current carrying capacity and lower electric losses compared with the conventional conductors, and have the potential to transform the electric power grid.

This special issue aims to provide a forum for the latest developments, future plan, and long-term roadmap for superconductivity for power grid applications. The focus will be on the achievements of superconductivity-based technological developments, and applications in generation, transmission, and distribution of electricity, fault current limitation, loss evaluation, feasibility studies. Topics can range from an individual device to integrated systems, from laboratory investigations to grid deployment.

We hope that this special edition will shed a new light on the disruptive innovation in the field of applied superconducting that is expected to change the world and modernize the power network assets.

Topics that would be of interest in this edition include, but are not limited to:

- Roadmap for future of large-scale superconductivity for power network application
- Advancements in superconducting technology in power grid
- System optimization, considering cost, efficiency, overall performance, and reliability
- Superconductivity for smart grids
- Superconductivity for HVDC systems
- High temperature superconducting devices
- MgB_2 superconducting devices
- Superconducting power transformer
- Superconducting traction transformer
- Superconducting fault current limiter
- Superconducting power cable
- Superconducting magnetic energy storage
- Installation feasibility studies and policy
- Risk mitigation and reliability
- Measurements and experimental tests
- Simulation of device performances
- Diagnostics and condition monitoring
- Superconducting asset management
- Manufacturing process and future plan
- Economic evaluation
- Cooling system design, evaluation, and costs
- Artificial intelligence for applied superconductivity
- Reliability and lifetime estimation of the superconducting devices
- Thermal and mechanical performance of superconducting devices
- Recycling of superconductivity components or devices
- etc.