

2nd Thematic School on Dielectrics 2021

September 19-24, 2021
Porquerolles Island, France

Multiscale Modelling of Dielectric Materials and Related Structures

Scope *Improving the efficiency of Power Engineering systems requires an evolution towards more compact devices as well as an increase in thermal, mechanical and electrical operating stresses, while insulations constitute one of the main reasons for system failure. Progress in these energy conversion and transmission systems therefore goes with better control of materials and stresses to which they are subjected. These evolutions occur in a context where new possibilities for creating, functionalizing and modulating the properties of materials are emerging (nano-composites, functionalization, gradation, etc.) without necessarily being able to derive the best benefit from these advances.*

Modeling activities are a response to an optimal design of materials and structures. The modeling techniques and tools are evolving, are very diverse (density functional at the molecular scale, finite elements, statistics, scale laws, etc.) and it seems important, through this thematic school, to provide the Electrical Engineering community with benefits from these advances. A wide range of problems relating to insulators will be addressed, ranging from formulation - electronic properties relationships, to the calculation of stress distributions in objects combining fluids and solids, to multi-physics aspects, and to life models.

Topics

- Issues and challenges related to insulation materials
- Nanomaterials / opportunities and open questions
- Theoretical basis on dielectric properties of materials
- Ab-initio and dynamic molecular methods
- Ageing models, life expectancy, scaling laws
- Multi-physics modelling: tools, applications, risks
- Insulation characterization techniques
- New applications, technologies and stresses

Lecturers

Prof. Giovanni MAZZANTI, Univ. Bologna, Italy
Prof. Yuriy SERDYUK, Univ. Chalmers, Sweden
Dr. Mikael UNGE, NKT, Sweden
Prof. Masahiro KOZAKO, Kyutech, Kyushu, Japan
Prof. Lionel FLANDIN, Univ. de Savoie, France
Prof. Olivier EICHWALD, Univ. Toulouse, France
Prof. Thierry PAILLAT, Univ. Poitiers, France
Dr. Olivier LESAIN, CNRS, G2ELab, Grenoble, France
+ Many Others

Organisation

Besides the main courses in the mornings, students will be trained, by groups, on simulation desks and various measurement techniques on Lab test benches.



The Thematic School is supported by the French National Centre of Scientific Research (CNRS) and the IEEE Dielectrics and Electrical Insulation Society (DEIS). The organization is by the French dielectrics group of SEEDS-CNRS network <https://seeds.cnrs.fr/gt-materiaux-dielectriques/>

The conference will be held at the Centre IGESA, which belongs to the armed forces of France as a recreation and meeting location.

The site of Porquerolles island, on the French Riviera, is a protected area Classified "heart of National Park" since 2012. Due to accommodation restriction, the island is nearly free from tourists in the evenings making it a quiet place. <https://www.provenceweb.fr/le/var/porquerolles/porquerolles.htm>

Organizers / Contact persons

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Registration fees*

Students	470 €
Academic staff	780 €
Industrialists	1050 €

*Training + Full accommodation on a double room basis including catering for 5 days.

Registration is now open. Due to limited accommodation facilities, registration will be validated on a first-come, first-served basis. Please visit our website for instructions: <https://seedsschool.sciencesconf.org/>