

## **Durability of Organic Composite Materials**

### **Organisers:**

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### **Short description and aim:**

Their excellent specific properties have positioned organic composite materials as obvious candidates for replacing traditional materials in many fields, for instance: transport, energy, nuclear and civil engineering. This change will be operated for applications highly demanding in terms of reliability only if the durability of these materials is well known and controlled. This ignorance is partly due to the complexity of aging mechanisms, but it is also largely due to the abuse of empirical methods for lifetime prediction.

The objective of this session is double. First, it will be devoted to the study of mechanical, physical and chemical mechanisms involved in the complex aging process. A peculiar attention will be paid to embrittlement mechanisms. Secondly, it will be dedicated to the latest advances in kinetic modelling of physical and chemical aging and its consequences on use properties (in particular mechanical properties). A peculiar attention will be paid to multi-scale and multi-disciplinary approaches taking into account multi-physical couplings, for instance the coupling between reagent diffusion and chemical consumption, or the effect of a mechanical stress on reagent diffusion or chemical consumption.

Such a session might interest the entire community of researchers and industrialist working in a laboratory or in a design office on the field of aging of organic composite materials.

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