

S06 Multiphysics problems

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Our ability to simulate multiphysics problems that involve the coupling of electro-chemical, thermo-electric, or photo-electric phenomena with mechanics rely on the development of robust theoretical and computational approaches. This session aims to bring together state-of-the-art efforts related to the development of new theoretical concepts and numerical solution techniques for multiphysics problems in applied sciences and engineering. Some topics in this session will include:

- Theoretical description of the coupling of physico-chemical phenomena with mechanics.
- Numerical treatment of multiphysics problems.
- Experimental validation of coupling concepts and multiphysics simulations.
- Data-driven approaches for accelerating solutions of multiphysics phenomena.

Both fundamental and industry-oriented contributions will be considered. Applications of new theoretical concepts and numerical techniques to the design of multifunctional materials (e.g. nanomaterials and metamaterials), and their corresponding devices (e.g. batteries and fuel cells) will be of particular interest in this session.