

Special Issue on  
**Experiment and Simulation of Multiscale and  
Multiphysics Phenomena in Electrochemical Systems**

# CALL FOR PAPERS

Due to the significant progress on emerging experimental techniques and high computing power over the past decades, we can design physical-chemistry experiment and utilize experiment-enhanced simulation to capture the complex multiscale and multiphysics phenomena in electrochemical systems with unprecedented sophistication and details at discrete temporal and spatial scales. Successful cases and examples are demonstrated in diverse technologies ranging from energy storage to energy conversion, catalysis, and optoelectronics. Although promising, it is urgent to address the dilemma facing the researchers to compensate the trade-off between experimental complexity and computational cost. In addition, current chemical systems are becoming more integrated and complicated by finer scale effects. These effects are essential to be experimentally/computationally captured so as to enable comprehensively understanding the above systems. To exploit and achieve the goal of accurate predictive capabilities, it is essential for innovation of mathematical and computational modeling as well as the experimentation in electrochemical systems.

This special issue is aimed at both investigating multiscale and multiphysics phenomena in electrochemical systems and collecting major advances in experimental and modeling techniques. Original research papers, as well as review articles, are welcome.

Potential topics include but are not limited to the following:

- ▶ In situ and in operando investigation of battery degradation
- ▶ Synthesis of catalytic materials in flames
- ▶ Mechanical-electrochemical-thermal simulation of fuel cells
- ▶ Mesoscale phase-field modeling of MEMS and NEMS
- ▶ Modeling for electrochemistry of semiconductor
- ▶ Synthesis of two-dimensional nanomaterials for supercapacitor

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/jchem/physical.chemistry/esmmp/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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