



Spectroscopy in Catalysis

Guest Editor:

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Message from the Guest Editor

Developing novel materials with superior activity and selectivity are paramount to catalytic reactions. To develop an efficient catalyst, a proper mechanistic understanding of the reaction pathways and identification of reactive sites are indispensable. However, the clear identification of the catalytic active sites and elucidation of the reaction mechanisms in many reactions still remain elusive. In this vein, ex situ measurements are valuable techniques to determine the chemical and physical properties of the catalyst, before and after the reaction; however, they do not provide accurate information about the reaction intermediates and the catalyst during the reaction. Operando Raman spectroscopy and X-ray absorption spectroscopy, just to name a few, are powerful tools to investigate the reaction intermediates and also to track changes on the catalyst under the reaction conditions.

This Special Issue is particularly oriented at utilization of in-situ Raman, XAS (EXAFS and XANES), IR and their contribution in understanding the catalytic reaction mechanisms. Computational studies that model the spectroscopy results are also welcome in this special issue.

