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In Situ Characterization of Electrocatalysis at Electrified Interfaces

Thursday, 9 September 2021 11:00 (30 minutes)

Studying electrochemical reactions at interfaces between different states of matter has been a long-term interest for both experimentalists and theorists in wide-range research areas. Revealing the fundamental properties at such interfaces is critical for a complete description of relevant electrochemical processes and for future designs of advance materials. In this talk, we will present a brief review on our in situ investigations at electrified interfaces, including gas/solid interface of solid oxide electrochemical cells and liquid/solid interface of magnesium rechargeable batteries. 【1, 2】These examples highlight the importance of studying "living" interfaces in a dynamic environment and the value of correlative in situ methods. 【3】We will discuss our beamline at Shanghai Synchrotron Radiation Facility, which allows in situ studies at pressures up to 20 mbar with high spatial resolution. We will also share recent progress on our lab-based system dedicated for in situ investigations of liquid/solid interfaces. Other new experimental methods will be briefly discussed as well.
References:
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[2] Yu, Y.; Baskin, A.; Valero-Vidal, C.; Hahn, N. T.; Liu, Q.; Zavadil, K. R.; Eichhorn, B. W.; Prendergast, D.; Crumlin, E. J., Chemistry of Materials 2017, 29, 8504.
[3] Han, Y.; Zhang, H.; Yu, Y.; Liu, Z., ACS Catal. 2021, 11, 1464.

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