

**Balancing Single Atom Dispersion and Synergy in Pt<sub>1</sub>/Mo<sub>2</sub>C Electrocatalyst for 4-Electron Oxygen Reduction****Speaker:** Zhang Lei

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**Time:** 3:30 to 4:00 pm  
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**Abstract**

Single atom catalysts (SACs) have gained tremendous research interests as a promising route to maximizing the specific catalytic activity and reducing the usage of precious metals. However, some reactions require the collaboration of neighboring active sites for efficient catalysis to take place. The Oxygen Reduction Reaction (ORR), for example, happens by either the 2-electron pathway or the 4-electron pathway. Most of the noble metal SACs reported for ORR so far feature low metal loadings supported on a large surface area material, which usually favor the 2-electron partial reduction, because it is difficult for the atomically dispersed and isolated active sites to act in synergy to catalyze the 4-electron ORR. Therefore, for efficient 4-electron ORR, it is paramount to minimize the distance between active single atoms to allow for synergistic actions, while preventing their aggregation and coalescence. Herein, atomically dispersed Pt on a mesoporous Mo<sub>2</sub>C microflower support (Pt<sub>1</sub>/Mo<sub>2</sub>C) was synthesized and demonstrated high mass activity and stability in 4-electron ORR. By varying the single atom Pt loading and thus the distance between the active Pt sites, the selectivity can be tuned between the 2-electron and 4-electron ORR pathways.

Zhang Lei received her Bachelor's Degree in Materials Science and Engineering from the National University of Singapore. She is currently a PhD candidate in the Department of Materials Science & Engineering under the supervision of Prof. John Wang. Her research interests are electrocatalysis and energy storage.

**ALL ARE WELCOME!**

Host: A/P Xue Junmin