

# Organic Electrode Materials for Future Sustainable Batteries

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Refreshments will be  
served at 3:45 PM

WIDT 330



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Organic redox-active molecules are considered to be an up-and-coming alternative to the conventional inorganic metal oxide-based electrode materials for next-generation secondary batteries due to their advantages in high specific energy and power, low-cost, natural abundance, environmental friendliness, and easy chemical tunability. To date, a lot of organic materials, including conducting polymers, organosulfurs, nitroxides, and carbonyl compounds, have been studied as electrode materials in metal-ion batteries. However, the redox-potentials obtained from most of the organic cathode and anode materials to date are below 3 V and above 1 V, respectively, leaving much room to catch up with the inorganic materials. Moreover, they are still plagued by high solubility in the electrolytes and by low electric conductivity, which limits their cycle stability, rate performance, and energy density. In this talk, we present novel molecular design strategies to resolve those issues and thus to achieve high-performance organic electrode materials.

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