Bio-inspired nanomaterials for energy conversion

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Bio-inspired nanomaterials, inspired by the diverse and sophisticated materials and hierarchical material systems found in nature, are becoming of increasing interest. Currently, it more focuses on developing a fundamental understanding of the synthesis and hierarchical organization of natural occurring materials, and uses this understanding to engineer new eco-friendly "bio-inspired" materials for diverse applications. This talk will describe our recent efforts on developing bio-inspired nanomaterials for energy conversion. First, I will show several examples on how we developed universal approaches for creating bio-inspired hierarchical structures for energy storage. When the bio-inspired hierarchical structures were used as electrode materials, they behaved enhanced energy storage performance. Then, I will discuss how the bio-inspired materials can be developed and used for light harvesting with enhanced photo-activity. Finally, the examples on the bio-inspired hierarchical artificial photosynthetic systems for solar hydrogen evolution will be presented.

References:

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