

## **Two-Dimensional Semiconducting Nanosheet-Based Materials: Synthesis and Various Applications**

Assoc. Prof. Hua Zhang, Nanyang Technological University

In this talk, I will summarize the recent research on synthesis, characterization and applications of 2D semiconducting nanomaterials in my group [1]. I will introduce the synthesis and characterization of novel 2D semiconducting materials, such as graphene-based composites [2] and single- or few-layer metal dichalcogenides nanosheets [3], especially the first-time synthesized hexagonal-close packed (*hcp*) Au nanostructures on graphene oxide [4]. Then I will demonstrate the applications of the 2D nanomaterials in chemical and bio-sensors [5], solar cells [6], electric devices [7], memory devices [8], conductive electrodes [5b,f,h,i, 6, 7a, 8a-c, 9], supercapacitors [10] etc.

### **Reference:**

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