

Carbon Nanotubes and Graphene Nanoribbons

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This talk will present our work on carbon nanotubes, graphene nanoribbons and graphene-inorganic hybrid nanomaterials. First, biological applications of carbon nanotubes will be discussed including a new fluorescence imaging method in the so called NIR-II region in the spectral window of 1000-1400nm. NIR fluorescence enhancement of carbon nanotubes and organic fluorophores will be presented on a novel plasmonic substrate for 3D molecular tracking and biological detection. I will then talk about graphene nanoribbons, including several methods recently developed in our lab to form high quality graphene nanoribbons with narrow widths and smooth edges. Lastly, I will talk about our recent work on making inorganic nanoparticles and nanocrystals on graphene sheets and carbon nanotubes for energy storage and electrocatalytic applications.