**Colloidal Quantum Dot Nanocrystals: Synthesis, Self-Assembly and Applications**

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Nanocrystal materials are emerging as an important class of tools that are revolutionizing both fundamental science and technological applications due to their many unique properties. In particular, quantum dots nanocrystals have demonstrated their great potential to be applied in a wide variety of applications as a unique emissive material. In my talk, I will describe our experimental efforts for the synthesis and characterization of different types of isotropic and anisotropic quantum dot nanocrystals. These dots combine, in one material, great optical performance metrics desired in quantum dot nanomaterials. Then, I will show how we can use colloidal quantum dot nanocrystals as building blocks to generate higher-order architectures in assemblies. At last, several quantum dot nanocrystal-based applications studied in my lab will be discussed.

**Biography**

Professor Ou Chen obtained his B.S. degree in Chemical Physics from the University of Science and Technology of China (USTC) and completed his PhD study supervised by Prof. Y. Charles Cao in the Department of Chemistry of University of Florida in 2010. He worked with Prof. Moungi Bawendi at MIT as a postdoctoral researcher before joining the Brown University as a faculty member. His research focuses on understanding fundamental mechanisms of synthesis, assembly and high-pressure processing of semiconductor quantum dots, perovskite nanocrystals and heterostructural nanomaterials for various applications including photocatalysis and solar energy harvesting. Prof. Chen received a number of awards including NSF Career award, Sloan Research Fellowship award, Camille Dreyfus Teacher-Scholar award, 3M Non-Tenured Faculty award, Brown University Early Career Research Achievement Award, etc..