Fluorescence Blinking, Photoactivation and Ultrafast Charge Carrier Dynamics in All-Inorganic Perovskite Nanocrystals (CsPbX₃)

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Organic-inorganic lead halide perovskite nanocrystals have received great attention in recent years due to their potential applications in low cost efficient photovoltaic devices [1]. More recently, cesium based all inorganic perovskite nanocrystals have also come into prominence in several promising applications [2]. However, despite growing interests on all-inorganic perovskite nanocrystals, fundamental photo-induced processes, whose understanding is key to exploitation of these substances in potential applications, have remained largely unexplored. In this talk, photo-induced behavior of all-inorganic perovskite nanocrystals, CsPbBr₃, CsPbBr₂I and CsPbBr₁.₅I₁.₅ will be presented [3,4]. Specifically, fluorescence blinking and photoactivation of these substances, as revealed by fluorescence correlation technique, and complete ultrafast charge carrier dynamics, as measured by femtosecond time-resolved pump-probe technique, will be discussed.

References: