

JEFFREY I. ZINK INORGANIC CHEMISTRY SEMINAR SERIES



Prof. Emily Tsui

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“Organometallic Chemistry at Quantum Dot Surfaces”

Abstract: Due to their tunable optoelectronic properties, colloidal semiconductor quantum dot nanocrystals are useful in applications like displays, photovoltaics, and photocatalysis. Chemistry at nanocrystal surfaces, including redox processes, association/dissociation, and other structural rearrangements, has an outsize effect on the nanocrystal properties, but is challenging to study with typical spectroscopic methods. We show that organometallic fragments like transition metal carbonyl complexes can act as strongly-bound X-type or Z-type ligands to the nanocrystal surfaces, and that these species can be useful spectroscopic reporters of surface chemistry. These functionalized nanocrystals therefore enable in situ measurements of surface stoichiometry and surface charge under photoexcitation and during photocatalysis.

Meet the Speaker

11:00 a.m. | YH 3096

Wednesday, November 16th, 2022

4:00 p.m. | YH4222 - Collaboratory
Yoo Seminar & Conference Room