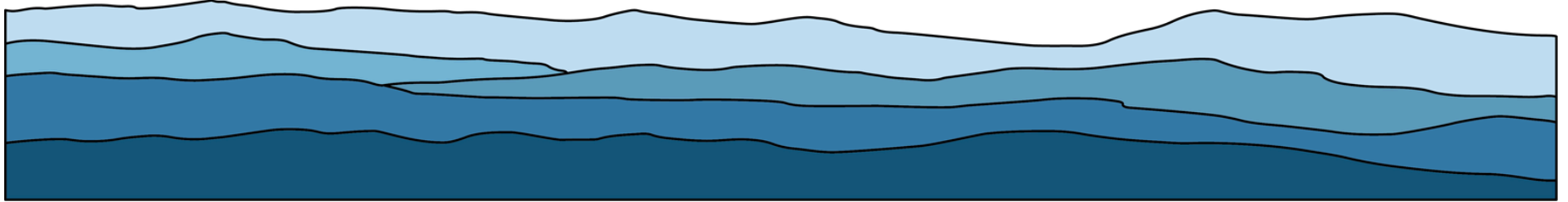


# HIGHLANDS IN CHEMISTRY SEMINAR SERIES



## Professor William Tisdale

Massachusetts Institute of Technology

### “Hybrid Semiconductor Nanomaterials”

Hybrid organic-inorganic semiconductor nanomaterials – including colloidal quantum dots (QDs), 2D halide perovskites, and metal organochalcogenides – are excitonic materials with applications ranging from solar cells to light-emitting devices to quantum computing and quantum cryptography. In these emerging materials, the combination of quantum and dielectric confinement, strong exciton-phonon coupling, and dimensionality reduction offer unprecedented opportunities for controlling light-matter-charge interactions through chemistry. In this talk, I will describe recent work from my lab on the synthesis and photophysics of hybrid semiconductor nanomaterials and our evolving understanding of how structure and chemical functionalization influence excited state dynamics.

February 7, 2025

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2:30 PM ET

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Hahn Hall North 140