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Studies in Photochemistry using Pulse Radiolysis at Brookhaven National Laboratory

Speaker: Dr. Matthew Bird
Chemistry Division
Brookhaven National Laboratory

Date: Tuesday, October 13th, 2026
Time: 6:30-7:30 PM on Zoom

Place: Register to receive Zoom link:
<https://suny-ow-edu.zoom.us/meeting/register/BaPopBAzRNi95CNc0KQwsQ>
Event is free of charge



Abstract: Pulse radiolysis is a powerful tool that can rapidly generate reactive chemical species (excited states, radicals, solvated electrons) to let us learn about their properties (spectra, thermodynamics, rates of reaction). In this presentation, I will introduce the technique, talk about its important historical contributions and its modern applications in areas such as energy, catalysis, radiotherapy, and microelectronics. I will then cover three recent applications of work at BNL involving a) measuring charge transport along “molecular wires”, b) unravelling mechanisms of photoredox catalysis and c) determining fundamental electronic properties of radicals.

Biography: Dr. Matthew Bird earned his BA/MSci (Natural Sciences) and Ph.D. (Physics) from the University of Cambridge. His graduate research focused on spectroscopy of charge carriers in conjugated polymer optoelectronic devices. At BNL he has applied the uncommon but powerful technique of pulse radiolysis in studies of electron and energy transfer in molecular systems. Since 2018 he has been a co-PI in the Department of Energy’s “Bio-Inspired Light-Escalated Chemistry” Energy Frontier Research Center (EFRC), led at Princeton. In 2021, with Dr Jeffrey Lipshultz (Stony Brook University), he co-founded an annual BNL-SBU photochemistry symposium, now known as the Long Island Photochemistry Symposium (LIPCS).

Presented by the Long Island Subsection of the American Chemical Society