

MONDAY

COLLOQUIUM

From Sunlight to Sustainable Chemistry: How Hot Electrons in Black Gold Convert CO₂ into Value-Added Products

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25 Nov 2024 (Monday) | 16:00 Hrs (Tea / Coffee 15:45 Hrs) | Venue: TIFRH Auditorium

Imagine turning sunlight into a tool for solving one of the world's biggest challenges—climate change. In this talk, I will introduce our work on using a special material, "Plasmonic Black Gold," that has the power to harness sunlight and transform CO₂ into useful chemicals and fuels. By converting traditional gold into a black form that absorbs sunlight more efficiently, and pairing it with nickel, we've created a catalyst that can drive a variety of chemical reactions, including converting CO₂ into carbon monoxide, all powered by solar energy.

I will walk through how this system works and the advanced techniques we used to study these reactions in detail, from synthesis, and catalysis to in-situ spectroscopic analysis. Beyond CO₂ conversion, this black gold catalyst has shown promise in several other solar-driven reactions, making it a versatile solution for sustainable chemistry.



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