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“MOLECULES + MATERIALS: NEW APPROACHES TO SOLAR FUELS SYNTHESIS”

November 15th, 2019 ~ 11:30AM
Life Science Center II, Room 130

Abstract: The Caputo group is interested in the design of new hybrid photocatalytic systems that make use of molecular catalysts in combination with photosensitizers or light absorbing materials for both catalytic proton reduction to form hydrogen, and CO₂ reduction to CO, towards the synthesis of solar fuels. Our work is focused on the 2D material, black phosphorus or phosphorene, which is the phosphorus analogue of graphene. This material is unique in that it has a thickness dependent bandgap; a smaller number of stacked layers gives a larger bandgap. This property has been exploited using liquid exfoliation techniques to create nanoflakes of black phosphorus for use in photocatalysis. By combining these nanoflakes with polymeric carbon nitride with deposited Co atoms on the surface, these materials generate both hydrogen and CO under a CO₂ atmosphere under visible light irradiation. We are also actively investigating the synthesis of new cobalt molecular catalysts bearing unique anchoring groups for both electrocatalytic and photoelectrocatalytic solar fuel generation. Our progress in this area will be presented.

FALL 2019 CHEMISTRY SEMINAR SERIES

**HOST:
DRS. GALOPPINI
& PROKOPCHUK**

**COFFEE SOCIAL
11:00 AM
OLSON HALL, 338**

**ALL THOSE
INTERESTED ARE
WELCOME TO
ATTEND**

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