



UCMERCED School of
UNIVERSITY OF CALIFORNIA Natural Sciences

CHEMISTRY SEMINAR 291

Photocatalysis of Plasmonic Nanoparticles: Turning Sunlight into Chemical Bond

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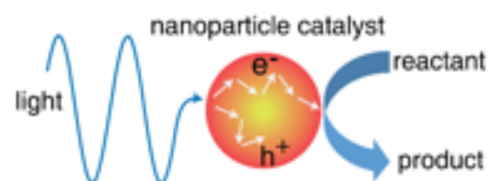
Time: 3:00PM

Location: COB 267

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ABSTRACT:

Plasmonic nanoparticles have been explored for hot carrier generation for “green” photocatalysis through excitation of localized surface plasmon resonance (LSPR). In contrast, carrier generation through excitation of interband transitions remains a less explored and underestimated pathway. In this study, photoinduced oxidative etching of gold nanoparticles with FeCl_3 was investigated as a model reaction in order to elucidate the photocatalytic activities originated from these two optical transitions. Interband transitions generate hot carriers more efficiently, and those carriers exhibit higher reactivity as compared to those generated by LSPR. To expand the application of this gold nanoparticle photocatalyst to organic synthesis, a cyclization reaction of alkynylphenols was developed.



BIO:

Son Nguyen is an assistant professor in Chemistry and Chemical Biology Department at UC Merced. His current research is focused on understanding and expanding the applications of nanomaterials to eco-friendly chemical synthesis and solar energy harvesting. These nanometer-sized materials have potential applications in chemical industry where chemical reactions will be driven by solar energy and hazardous wastes to the environment will be minimized. Prior to joining UC Merced, Son got both postdoctoral training and Ph.D. degree in physical chemistry at UC Berkeley.

