

Internal Webinar

Towards Understanding the Hot electron Chemistry of Plasmonic Nanoparticles

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In plasmon-enhanced heterogeneous catalytic reactions, illuminating visible light enhances the reaction rates by either generating hot electron carriers or by heating the lattice structures or both. This process greatly reduces the energy input requirements for the chemical transformations. However, an understanding of the two possible mechanisms, thermal and electronic excitations has been lacking. We report the light driven H_2/D_2 dissociation reaction on plasmonic Au nanoparticles. The kinetic data suggest significant contribution from thermal effects. We are investigating this further using equilibrium constant measurements in order to deduce the effective temperature at the reaction centres.

Monday, Sep 28th 2020

2:30 PM