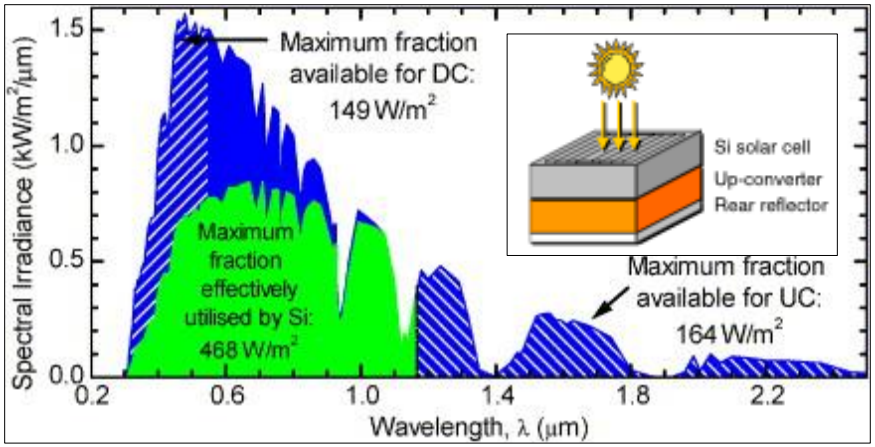
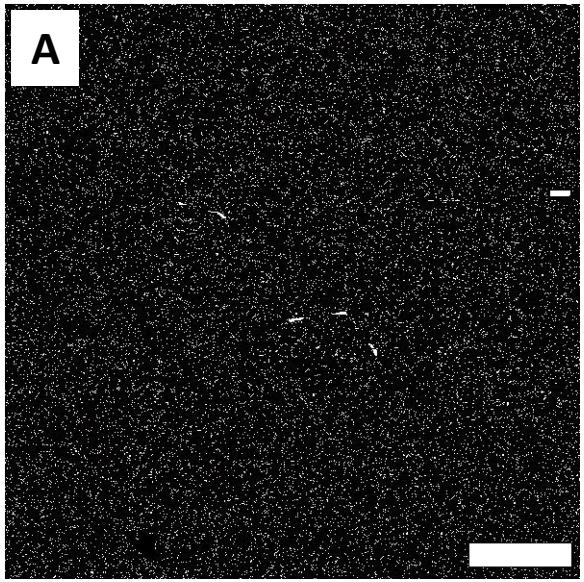
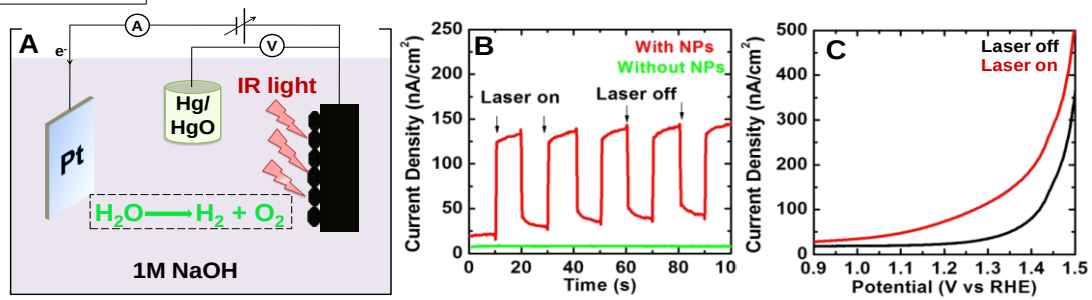
Surface Supported Rare Earth Element Based Nanomaterials as a Composite in Solar Cell Electrodes

Gnag-yu Liu and Mattew Augustine, Department of Chemistry, University of California, Davis, CA 95616



Our proposed idea of using RENs to harness the IR radiation in the solar spectrum.





A successful example under PRF-ND support. Left, SEM imaging of RENs of hematie electrodes. Right (A) A schematic diagram of the photoelectrochemical measurements. (B) Current density (red) of the REN/hematite electrodes was measured in the duration of the experiments, in which the 980 nm laser was turned on and off. The same electrode without RENs was also measured (green) as a negative control for comparison. (C) I-V measurements were taken for REN/hematite composite films with (red) and without (green) 980 nm illuminations.