# Building and Stabilizing Assemblies on Oxide Surfaces

## Scientific Achievement

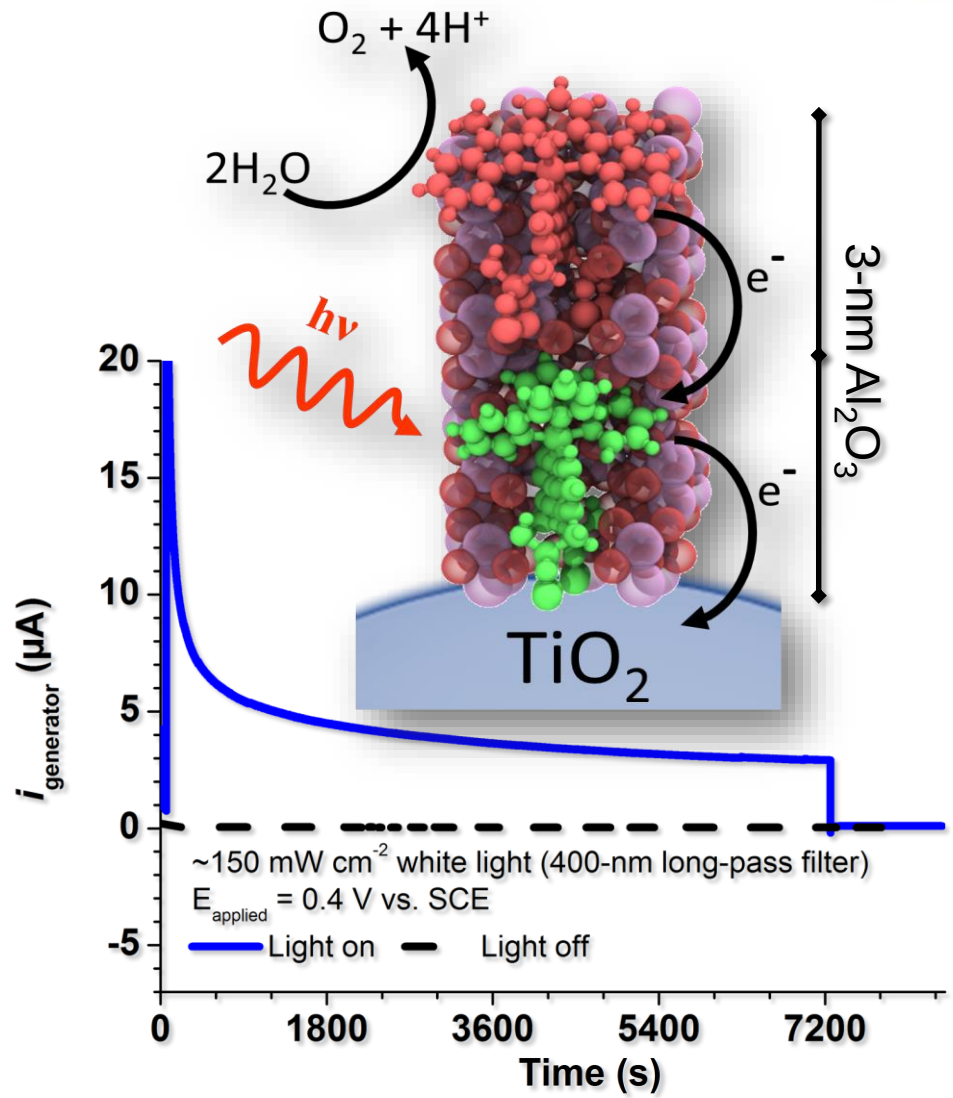
Atomic layer deposition is used to synthesize Ru-based molecular chromophore-catalyst assemblies on mesoporous titanium dioxide and tin-doped indium oxide electrodes

## Significance and Impact

Allows for construction of surface-stabilized molecular assemblies for DSPEC applications

## Research Details

- Full monolayer loading of outer molecular layer (catalyst)
- Operation possible at higher pH (~9)
- *In situ* detection of $O_2$ formed under illumination ($E_{app}$ = 0.4 V vs. SCE)




Lapides, A. M.; Sherman, B. D.; Brennaman, M. K.; Templeton, J. L.; Meyer, T. J. Synthesis, characterization, and water oxidation by a molecular chromophore-catalyst assembly prepared by atomic layer deposition, *In preparation.*

Work was performed at UNC Chapel Hill