

## **SURFACE MODIFICATION OF SEMICONDUCTOR IN DSSCS BY ALD**

Chaiya Prasittichai, Tina Li, Joseph T. Hupp  
Department of Chemistry, Northwestern University  
2145 Sheridan Rd.  
Evanston, IL 60208

In dye-sensitized solar cells, the recombination is believed to be controlled by the surface states on nanoparticulate semiconductor framework. Surface states can be reduced by adding additional layers of a higher band gap metal-oxide. In this work, we choose  $\text{ZrO}_2$  deposited by Atomic Layer Deposition (ALD) to demonstrate this concept. We found that after introducing a few cycles of  $\text{ZrO}_2$  on framework, surface states were tremendously reduced. Additionally, when adding a few cycles of  $\text{ZrO}_2$  on ZnO particles, the particles were shown to resist the acidic corrosion from Ru-based dye.