

Engineering the Photosensitizer-Semiconductor Interface in Dye-Sensitized Solar Cells

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The chalcogenorhodamine dyes shown below were found to be useful photosensitizers for the generation of hydrogen from water in homogeneous (Figure 1) and heterogeneous (Figure 2) systems and for the generation of electricity in dye-sensitized solar cells (Figure 3).

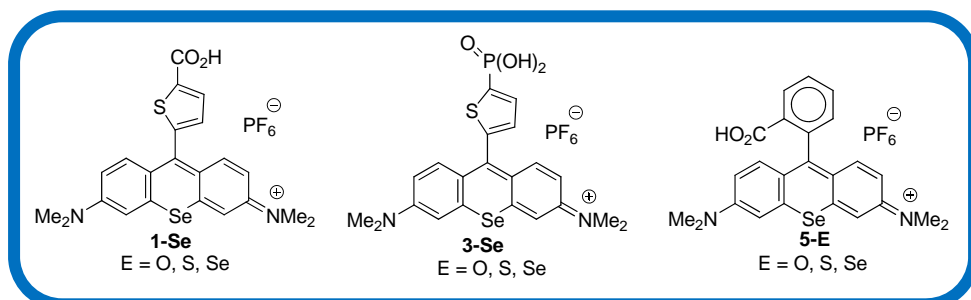


Figure 1. Dyes 5-E as Photosensitizers for the Evolution of Hydrogen with a Homogeneous Cobalt Catalyst

Singlet oxygen yields (Q) in MeOH

name	5-O	5-S	5-Se
Q	0.05 ± 0.03	0.17 ± 0.01	0.67 ± 0.01

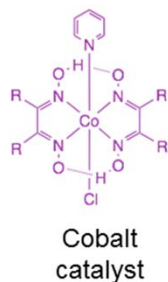
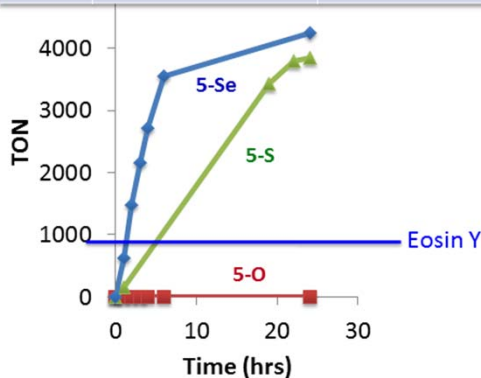


Figure 3. Chalcogenorhodamine Dyes **1-E** and **2-E** as Photosensitizers for Photovoltaics

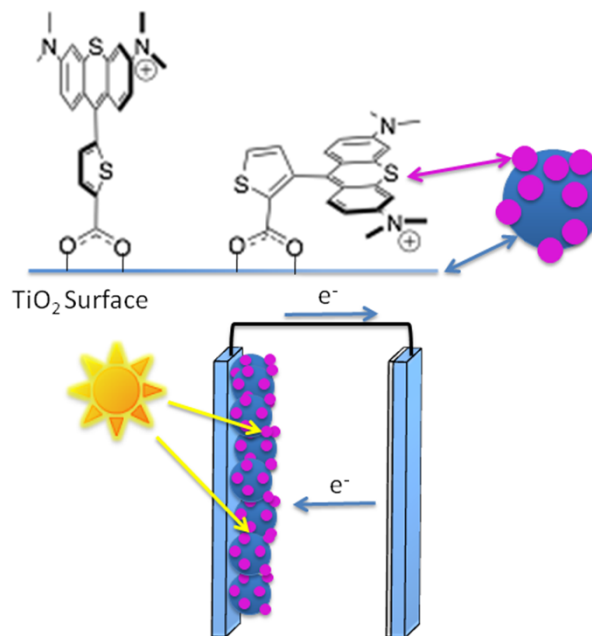


Figure 2. Dye 3-Se as a heterogeneous photocatalyst for the generation of solar hydrogen

