

Activity, stability, and selectivity in photo(electro)catalysis: challenges and examples

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The development of photo(electro)catalytic systems capable of mimicking the natural photosynthesis by driving useful chemical transformations has attracted significant interest motivated by the need to meet various environmental concerns and to secure the future supply of clean and sustainable energy. The activity, stability, and selectivity of such systems is determined not only by the ability of materials to absorb light, but also by efficient separation of the photogenerated charges and their fast and selective reaction with substrates. The talk will discuss the challenges associated with the development of photo(electro)catalytic materials, based on selected examples from our recent work, focusing on efforts at elucidating the mechanistic aspects that should enable further development of high-performance photo(electro)catalysts.^[1-5]

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