Abstract January 26, 2018 Discussion

Cocatalyst in Photon-Assisted Reduction of Carbon Dioxide

Cocatalyst has been used in the area of photocatalysis vigorously from the genesis. The same repeated in every application of photocatalysis to increase the photoactivity. There are three pivotal processes in photocatalytic CO_2 conversion: (i) solar-light absorption, (ii) charge separation/migration, and (iii) catalytic CO_2 reduction and H_2O oxidation. While significant progress is made in optimizing the first two processes, much less research is conducted toward enhancing the efficiency of the third step, which requires the presence of cocatalyst. In general, cocatalyst play four important roles: (i) boosting charge separation/transfer, (ii) improving the activity and selectivity of CO_2 reduction, (iii) enhancing the stability of photocatalysts, and (iv) suppressing side or back reactions. This presentation intends to make a comprehensive note on the role of cocatalyst in the photoreduction of carbon dioxide and the functions and mechanisms have been discussed in a perspectival way together with the literature data.

References.

1. J.Ran, M. Jaroniec, S.-Z. Qiao, Adv. Mater. 2018, 1704649. https://doi.org/10.1002/adma.201704649