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Bismuth-based new photocatalysts and associated photoreactors

Bismuth-based semiconductors are promising materials as visible light responsive photocatalysts due to their suitable band gaps, well-dispersed valence bands, commercial availabilities at reasonable costs, and the possibility of preparing them under mild conditions. Recent work on the preparation, characterization and activity testing of Bismuth-based photo active nanomaterials as well as associated photo reactor designs are introduced herein. In order to enhance the photocatalytic activities of the new materials, different precursors, additives, preparation procedures and process parameters, and surface treatments were tried to obtain binary and ternary heterostructures, with different doping, surface modification, nano-particle size and morphology. Application potentials of selected highly-active new catalysts were evaluated by examining the kinetics of photocatalytic degradations in compatible reactor designs. Suggestions were made for further work in the area.

Biography

Jason Zhang has completed his post-secondary education in Chemical Engineering at Hebei University of Technology, Tianjin University, and University of Waterloo respectively. He works at the University of Ottawa as a Full Professor and Vice-Dean of Engineering. He is currently on academic leave at Hebei University of Technology. He has published over 70 papers in SCI-indexed journals since 2013 and he also serves as an Editorial Board Member in *Chinese Journal of Chemical Engineering* and *Biotechnology Advances*.

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