Construction of 0D/2D composites heterostructured of CdTe QDs/ZnO hybrid layers to improve environmental remediation by a direct Z-scheme

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Abstract
Layered hybrid ZnO (2D) intercalated by myristic acid (MA) with (0D) CdTe quantum dots (QDs) was designed to increase the conversion efficiency of photochemical energy. The results showed that the introduction of CdTe QDs in ZnO(MA) layered with more active sites available enhanced the photocatalytic efficiency. The optimal composite sample ZnO(MA)/CdTe (1:0.02) showed excellent dye removal efficiency under simulated solar light irradiation, above 96% after three cyclic experiments. The correlation coefficients possessed the highest reaction rate. This study offers an efficient research approach and vision to support the development of other photocatalytic systems featuring a direct Z scheme. © 2021 The Authors

Author keywords
CdTe quantun dots; Layered
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