

Supplementary information

Au-ZnO hybrid nanoflowers, nanomultipods and nanopyramids: one-pot reaction synthesis and photocatalytic properties

Yuanzhi Chen, Deqian Zeng, Kun Zhang, Aolin Lu, Laisen Wang and Dong-Liang
Peng

Department of Materials Science and Engineering, College of Materials, Xiamen
University, Xiamen 361005, P. R. China.

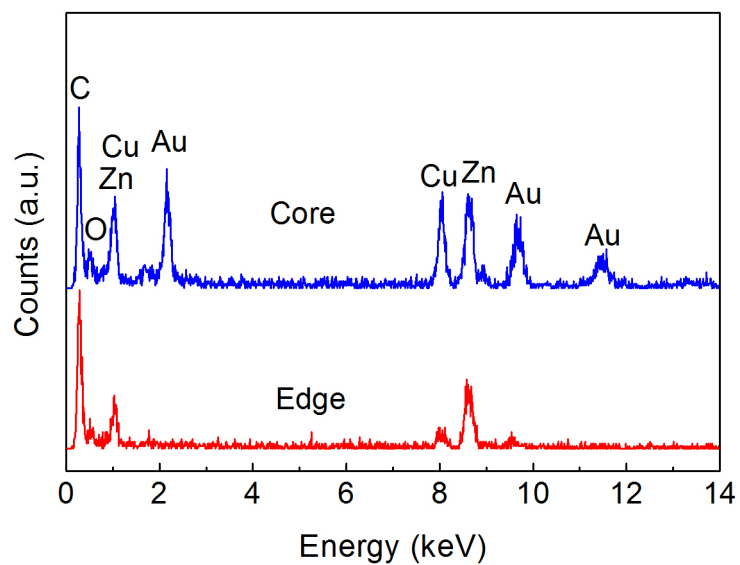


Fig. S1 EDS spectra recorded from the core (top) and edge (below) positions from a single petal-like Au-ZnO nanoflower.

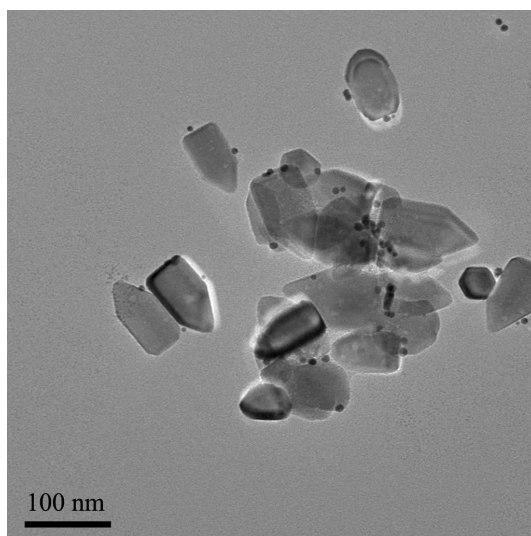


Fig. S2 The products synthesized using the method for preparing the petal-like Au-ZnO nanoflowers but without adding any 1,2-dodecandiol (DDL).

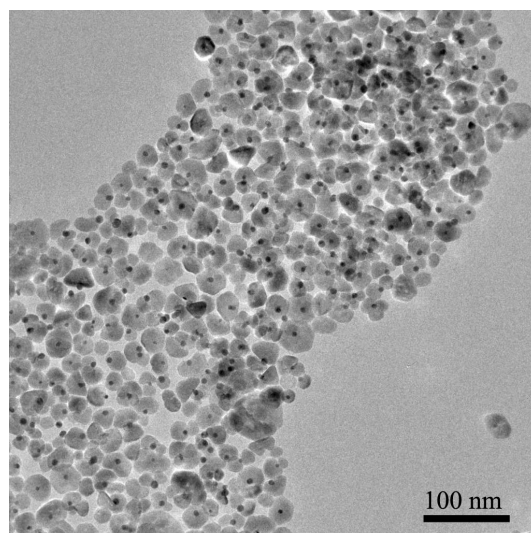


Fig. S3 The products synthesized using the method for preparing the petal-like Au-ZnO nanoflowers except that the solvent was pure OAm.

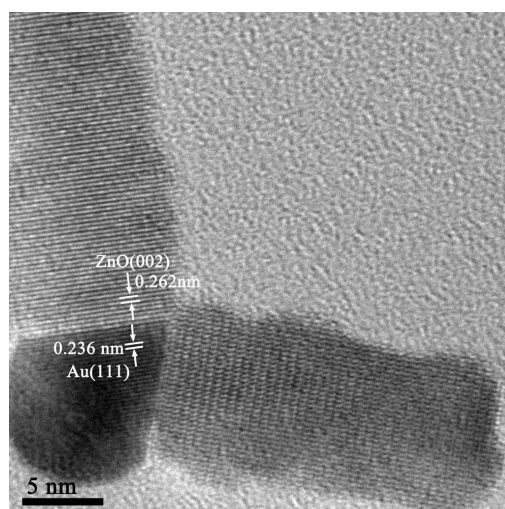


Fig. S4 HRTEM image of an Au-ZnO nanomultipod showing the epitaxial growth of ZnO (001) facet on the basis of Au (111) facet.

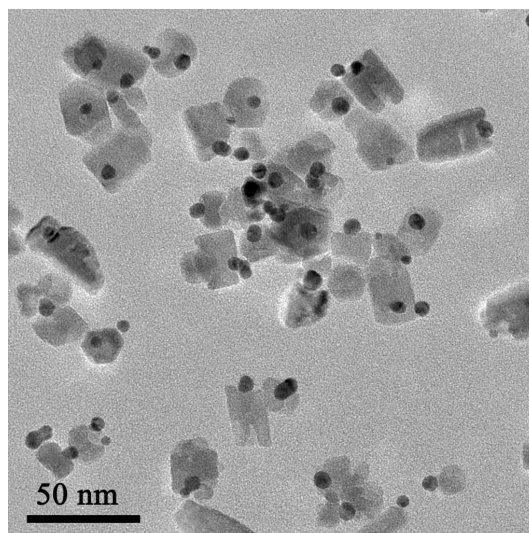


Fig. S5 The products synthesized using the main method for preparing nanomultipods except that no HDL was added.

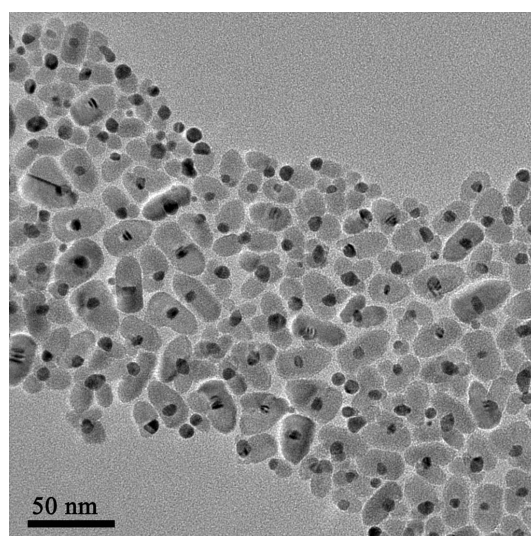


Fig. S6 The products synthesized using the method for preparing the Au-ZnO nanomultipods except that the reaction temperature was increased to 300 °C.

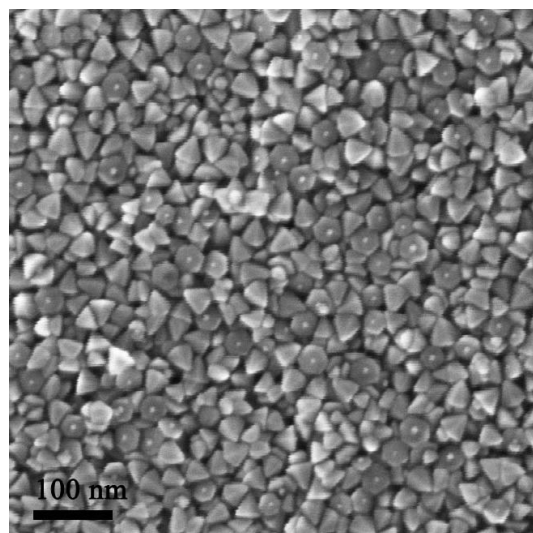


Fig. S7 SEM image of Au-ZnO nanopyrramids

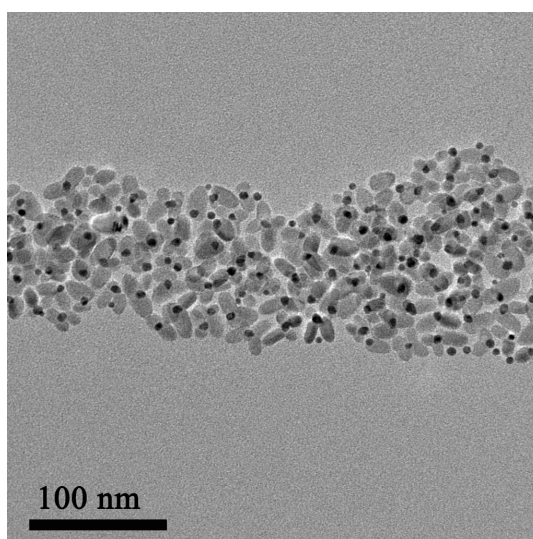


Fig. S8 TEM image of the products synthesized using the method for preparing Au-ZnO nanopyrramids except that the solvent is sole oleylamine (7 mL). Note that the original nanopyramid morphology tends to change to nanomultipod.

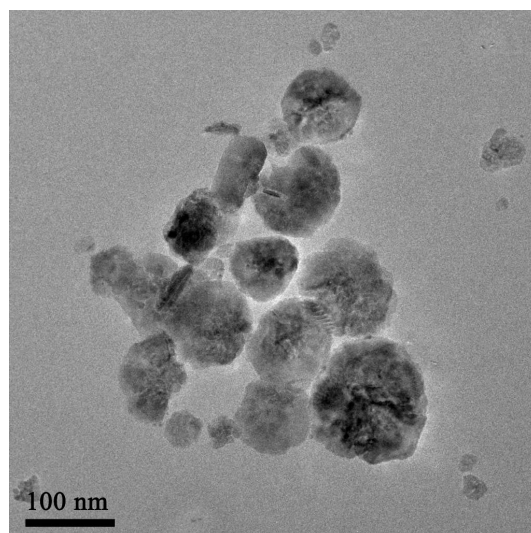
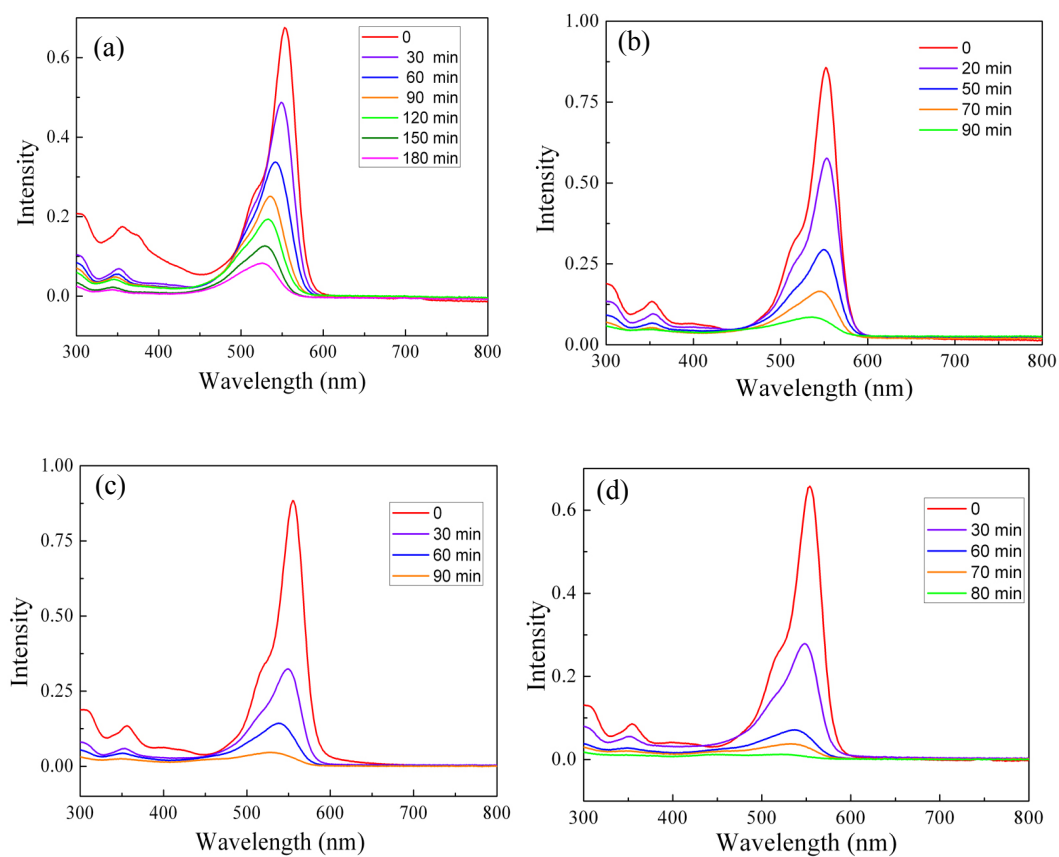


Fig. S9 TEM image of ZnO nanocrystals synthesized using the same method for preparing petal-like Au-ZnO nanoflowers except that no Au precursor was added.



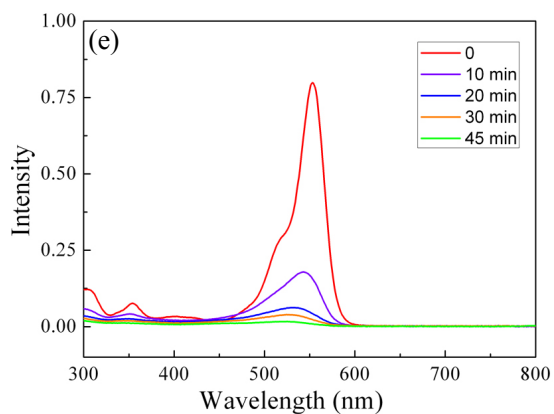


Fig. S10 Time-dependent UV-vis spectra recorded during the photocatalytic degradation of Rhodamine B by using pure ZnO nanocrystals (a), petal-like Au-ZnO nanoflowers (b), urchin-like Au-ZnO nanoflowers (c), Au-ZnO nanomultipods (d), and Au-ZnO nanopyramids (e).