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Fig. S1 Particle size distribution of ZnO NTs.



Fig. S2 The SEM image of 12PbS/ZnO NTs.



Fig. S3 The SEM images of (a) 6CdS/ZnO NTs; (b) 16CdS/ZnO NTs; (c) 20CdS/ZnO

NTs; (d) 6CdSe/ZnO NTs; (e) 12CdSe/ZnO NTs; (f) 16CdSe/ZnO NTs.



Fig. S4 (a) UV-vis absorption spectrum for photocatalytic degradation of MO under irradiation using ZnO NRs and PbS/ZnO NRs as photocatalysts; (b) The C_t/C_0 curves of ZnO NRs and PbS/ZnO NRs as photocatalysts.



Fig. S5 UV-vis absorption spectrum for photocatalytic degradation of MO under irradiation using (a) ZnO NRs and CdS/ZnO NRs; (b) ZnO NTs and CdS/ZnO NTs as

photocatalysts.



Fig. S6 UV-vis absorption spectrum for photocatalytic degradation of MO under irradiation using (a) ZnO NRs and CdSe/ZnO NRs; (b) ZnO NTs and CdSe/ZnO NTs



as photocatalysts.

Fig. S7 The schematic profile exhibiting the energy band alignment between (a)

CdS/ZnO; (b) CdSe/ZnO.