



Heterojunctions on Titanium Oxide Nano Particles

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Condition: New. Publisher/Verlag: VDM Verlag Dr. Müller | Heterojunctions of Zinc Selenide and Zinc Sulfide on Titanium Oxide Nano Particles and Their Photocatalyses | Nanocrystalline anatase phase titanium oxide converted from ammonium oxofluorotitanate by thermal treatment was developed and a large bandgap reduction due to the co-doping of high concentrations of fluorine and nitrogen. It is 1.3 times the photocatalytic activities of P-25 due to the visible region usage of Hg lamp light source. The 11.2 times the visible photocatalytic activities of P-25 using blue light-emitting diode as the light source is obtained. The heterostructure of zinc selenide/titanium oxide and zinc sulfide/titanium oxide were prepared by metal-organic chemical vapor deposition. The energy bandgap of zinc sulfide is much larger than that of titanium oxide and can act as a window for titanium oxide. It would not hinder titanium oxide absorption and preserve the role of fluorine and nitrogen co-doping. The energy bandgap of zinc selenide is near the maximum intensity of solar spectrum and acts as a sensitizer of titanium oxide. Their photocatalytic activities are further improved to 2.0 and 1.5 times higher than that of commercial P-25, respectively. | Format: Paperback | Language/Sprache: english | 180 pp.



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