Synthesis, Characterization and Applications of Nanomaterials in the Field of Photocatalysis

By Shamaila Sajjad

GRIN Verlag. Paperback. Book Condition: New. Paperback. 176 pages. Dimensions: 8.3in. x 5.8in. x 0.4in.Doctoral Thesis Dissertation from the year 2011 in the subject Chemistry - Materials Chemistry, grade: -, East China University of Science and Technology (-), language: English, abstract: Considerable effort has been made to design, fabricate, and manipulate nanostructured materials by innovative approaches. The precise control of nanoscale structures will pave the way not only for elucidating unique sizeshape dependent physicochemical properties but also for realizing new applications in science and technology. Nanotechnology offers unprecedented opportunities for improving our daily lives and the environment in which we live. This thesis mainly describes recent progress in the design, fabrication, and modification of nanostructured semiconductor materials for environmental applications. The scope of this thesis covers TiO2, Bi2O3 and BiOCl materials, focusing particularly on TiO2-based nanostructures (e. g. , pure, doped, coupled, mesoporous, hierarchically porous, and ordered mesoporous TiO2). Mesoporous titania is of particular interest since this class of materials possesses well-defined porosity and large specific surface areas. For photocatalytic degradation of organics, these desirable properties are anticipated to improve the efficiency. So in the first part of work, I have synthesized the mesoporous titania by using poly ethylene glycol...

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