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Structural-Dependent Photocatalytic Properties of Zinc Oxide

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Abstract. The present paper describes the effect of the structure of zinc oxide on its optical, electrical and photocatalytic properties. Examples of the influence of defects and lattice symmetry on photocatalytic activity are given. It is shown that oxygen vacancies allow to increase the rate of photocatalytic reaction due to donor properties and faceting allows to change the photocatalytic activity due to anisotropy of electric conductivity of zinc oxide. The mechanism of the influence of the dislocations and complex defects on zinc oxide photocatalytic proper-ties is proposed. The present data can be used for development of photocatalysts based on zinc oxide, and for describing the photocatalytic properties of other semiconductors.

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