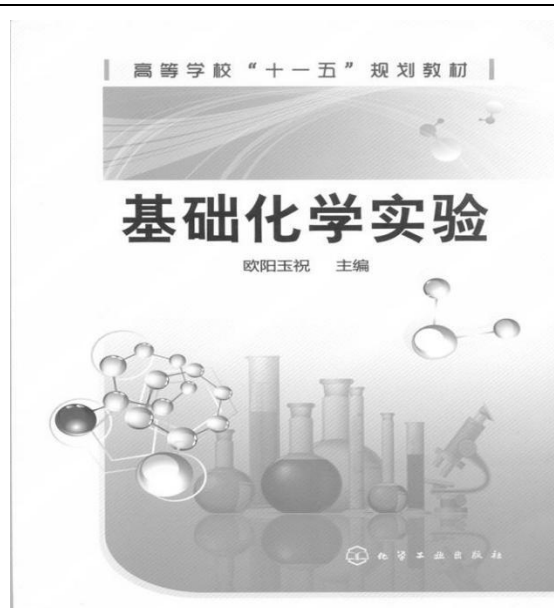
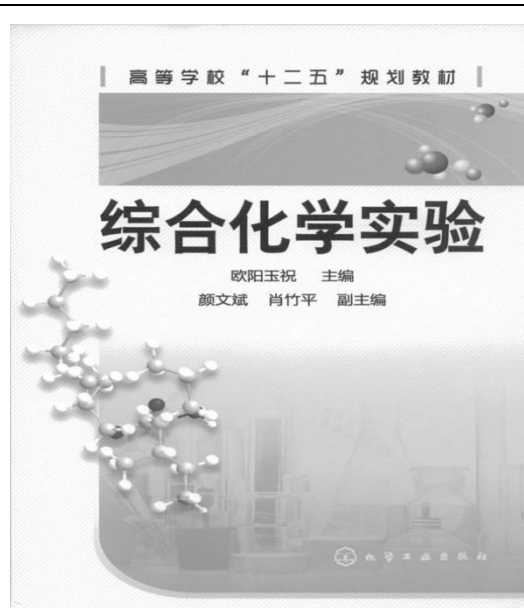


优秀教材

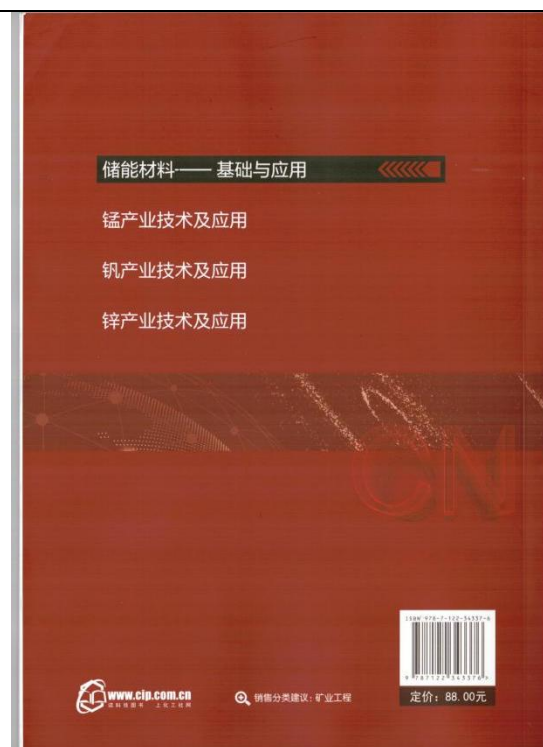
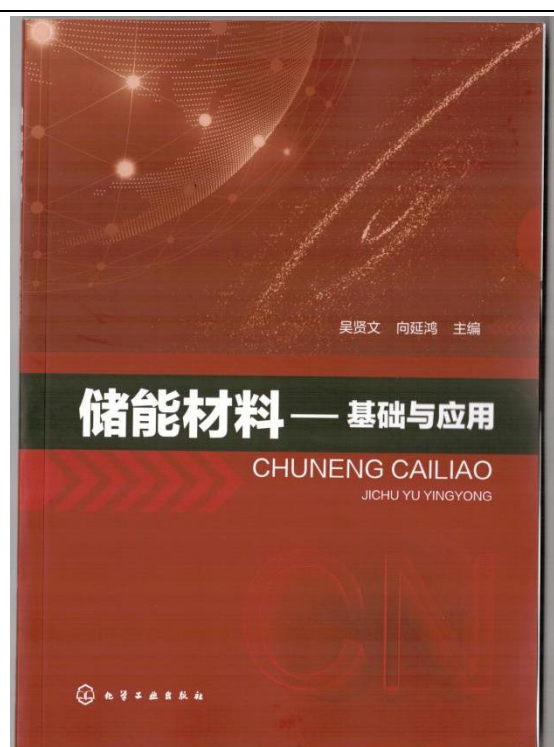
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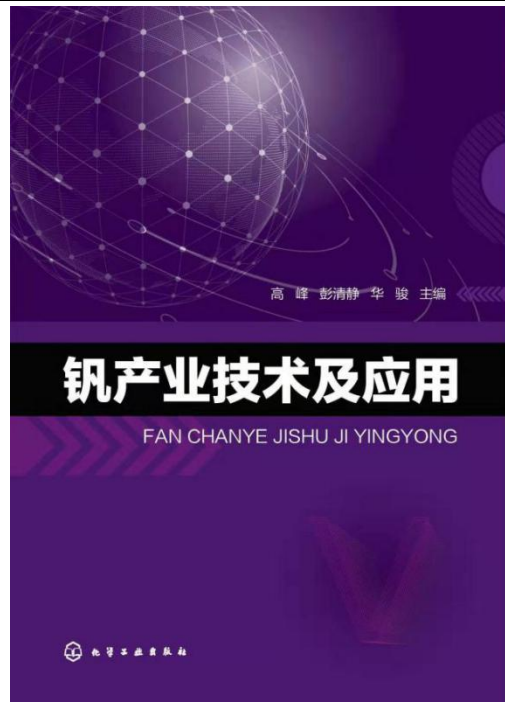
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SEMICONDUCTOR PHOTOCATALYSIS FOR WATER PURIFICATION

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1 INTRODUCTION

The rapid developments of industry and social economy have produced hazardous wastes, most of which were released to air, rivers, lakes, and seas, causing serious environmental contamination. Consequently, clean water sources became more and more inadequate, and worse, the demand for water increased quickly. The sustainable supply of good quality water has become a serious problem for the development of human beings. The recycling and reuse of wastewater effluents are important to increase the insufficient supply of clean water [1]. Previously, there have been some water-treatment approaches that had to be carried out to obtain reliable fresh water, such as adsorption [2], biological treatment [3], membrane-based separations [4], and chemical treatment [5]. However, the traditional treatments were developed to effectively remove various types of contaminants from water eventually resulted in the production of secondary pollutants, such as soluble refractory organic compounds, chlorine as well as health-threatening bacteria which are difficult to remove [6]. Therefore, the development of a green, sustainable, and nondestructive technology for wastewater treatment is of great importance.

2 IMPORTANCE OF SEMICONDUCTOR PHOTOCATALYSIS IN WATER PURIFICATION

Today, the rapid progress in urbanization and industrialization, and huge increases in population have resulted in environmental problems such as contaminated air and groundwater as well as hazardous wastes. The urgent demand for clean water sources has attracted great consideration all over the world. The recycling of wastewater (conversion of wastewater to harmless and readily disposable water) is considered a key to solving the problem of water shortage, and thus raises an increasing concern for the decontamination of waste water [1–4]. Because the organic compounds discharged in water are multiple and complex, including organic dyes, phenols, surfactants, pesticides, antibiotics, and personal care pharmaceuticals, it has become difficult to find a unique treatment procedure that can entirely eliminate all types of organic pollutants [1, 3]. To meet the demand for organic waste remediation

