



Pretreatment Techniques for Biofuels and Biorefineries (Green Energy and Technology)

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This book includes 19 chapters contributed by the world's leading experts on pretreatment methods for biomass. It extensively covers the different types of biomass (e.g. molasses, sugar beet pulp, cheese whey, sugarcane residues, palm waste, vegetable oil, straws, stalks and wood), various pretreatment approaches (e.g. physical, thermal, chemical, physicochemical and biological) and methods that show the subsequent production of biofuels and chemicals such as sugars, ethanol, extracellular polysaccharides, biodiesel, gas and oil. In addition to traditional methods such as steam, hot-water, hydrothermal, diluted-acid, organosolv, ozonolysis, sulfite, milling, fungal and bacterial, microwave, ultrasonic, plasma, torrefaction, pelletization, gasification (including biogas) and liquefaction pretreatments, it also introduces and discusses novel techniques such as nano and solid catalysts, organic electrolyte solutions and ionic liquids.

This book offers a review of state-of-the-art research and provides guidance for the future paths of developing pretreatment techniques of biomass for biofuels, especially in the fields of biotechnology, microbiology, chemistry, materials science and engineering. It intends to provide a systematic introduction of pretreatment techniques. It is an accessible reference work for students, researchers, academicians and industrialists in biorefineries.

Zhen Fang is a Professor of Bioenergy and the leader and founder of the biomass group at the Xishuangbanna Tropical Botanical Garden of the Chinese Academy of Sciences. He is also an adjunct full Professor of Life Sciences at the University of Science and Technology of China.

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Editorial Review

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Prof. Dr. Zhen FANG is leader and founder of biomass group, Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences. He is also an adjunct full Professor of Life Sciences, University of Science and Technology of China. He is the inventor of "fast hydrolysis" process. He is specializing in thermal/biochemical conversion of biomass, nanocatalyst synthesis and its applications, pretreatment of biomass for biorefineries. He obtained his PhDs from China Agricultural University (Biological & Agricultural Engineering, 1991, Beijing) and McGill University (Materials Engineering, 2003, Montreal).

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