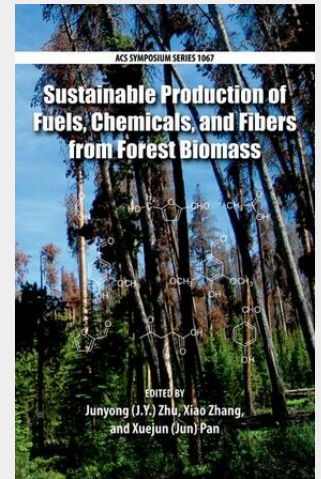


SUSTAINABLE PROD OF FUELS CHEM

Wood has always been-and continues to be-an important natural resource. Millions of tons of wood and forest biomass are harvested each year and converted to construction materials, commodity products, specialty chemicals, and fuel. We may have long taken for granted this invaluable natural resource bestowed on us through photosynthesis, partly because we have indulged in petroleum-based products and energy for over a century. Concerns over depletion of fossil fuel and global climate change drive us to search for alternative sources of energy that are sustainable and have less environmental impacts than petroleum. Although we have a number of potential options, forest biomass stands out because of (1) a vibrant forest products industry that is equipped with efficient infrastructures, logistics, and highly skilled human capital and (2) the potential for replacing the entire spectrum of petroleum-based products and chemicals with renewable materials and chemicals from forest biomass. There are huge challenges to developing and commercializing new technologies to the scale of several thousand tons of biomass per day (which may take decades) and the significant benefits-and potential short cut-of aligning with century-old industrial giants, such as the forest products industry, with mature and efficient production capabilities. This book offers a perspective on transforming the technologies, infrastructures, and knowledge that are part of forest products manufacturing processes to help establish a forest biorefinery industry for sustainable production of energy, chemicals, and products. The forest products industry has a wealth of experience and history of innovation in producing a variety of biomaterials, such as engineered wood products, pulp and paper, cellulose derivatives, textile materials, and specialty chemicals. This book explores the immense opportunity for developing next-generation bioproducts, chemicals, and materials from forest biomass.



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