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Nota di contenuto	Half Title; Title Page; Copyright; Contents; Introduction; Contributors; 1 Metal Catalysts for the Conversion of Biomass to Chemicals; 1.1 Introduction; 1.2 Hydrogenation Catalysts; 1.2.1 Catalysts for the Hydrogenation of Carbohydrates and Derivatives; 1.2.1.1 Hydrogenation of Glucose; 1.2.1.2 Hydrogenation of Fructose; 1.2.1.3 Hydrogenation of Xylose and Furfural; 1.2.1.4 Hydrogenation of 5- Hydroxymethylfurfural; 1.2.1.5 Hydrogenation of Levulinic Acid; 1.2.1.6 Hydrogenation of Succinic Acid; 1.2.1.7 Hydrogenation of Lactic Acid; 1.2.1.8 Hydrogenation of Arabinonic Acid 1.3.3 Metal Catalysts for One-Pot Conversion of Polysaccharides1.4 Metal Catalysts for the Oxidation of Carbohydrates and Derivatives; 1.4.1 Design of Metal Catalysts; 1.4.2 Oxidation of Glucose; 1.4.3 Oxidation of Lactose; 1.4.4 Oxidation of Glycerol; 1.5 Concluding Remarks and Prospects; Acknowledgment; References; 2 Current Catalytic Processes for Biomass Conversion; 2.1 Introduction; 2.2 Gasification of Cellulose; 2.2.1 Applications of Syngas; 2.2.2 Catalytic Conversion of Cellulose to Syngas; 2.2.3 Direct Production of Pure Hydrogen from Cellulose 2.3 Hydrolytic Hydrogenation of Cellulose2.3.1 Significance of Sorbitol Synthesis; 2.3.2 History of the Hydrolytic Hydrogenation of Cellulose;

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	<ul> <li>2.3.3 Reaction Mechanism for the Hydrolytic Hydrogenation of Cellulose; 2.3.4 Optimization of the Hydrolytic Hydrogenation of Cellulose; 2.3.4.1 Pretreatment of Cellulose; 2.3.4.2 Design of Solid Catalysts; 2.3.4.3 Utilization of Homogeneous Catalysts; 2.3.5 Hydrolytic Hydrogenation of Hemicellulose; 2.4 Conversion of Cellulose to C2 and C3 Chemicals; 2.4.1 Application and Synthesis of Ethylene Glycol</li> <li>2.4.2 Application and Synthesis of Propylene Glycol2.5 Hydrolysis of Cellulose to Glucose; 2.5.1 Significance of Glucose Synthesis; 2.5.2 Hydrolysis of Cellulose by Solid Sulfonic Acids; 2.5.3 Hydrolysis of Cellulose by Supported Metal Catalysts; 2.5.4 Hydrolysis of Cellulose by Weak Acids; 2.5.5 Usage of Ionic Liquids for the Hydrolysis of Cellulose; 2.5.6 Utilization of the Cellulose Hydrolysate for the Synthesis of Chemicals; 2.6 One-pot synthesis of other chemicals from cellulose; 2.6.1 Synthesis of 5-Hydroxymethylfurfural and Levulinates; 2.6.2 Synthesis of Gluconic Acid 2.7 Degradation of Lignin to Chemicals</li> </ul>
Sommario/riassunto	New and Future Developments in Catalysis is a package of books that compile the latest ideas concerning alternate and renewable energy sources and the role that catalysis plays in converting new renewable feedstock into biofuels and biochemicals. Both homogeneous and heterogeneous catalysts and catalytic processes will be discussed in a unified and comprehensive approach. There will be extensive cross- referencing within all volumes. This volume covers all the biomass sources and gives detailed and in-depth coverage of all current chemical/catalytic conversion processes of biomass into liqu