Realization of a low carbon society through game changing technologies

Synthesis of high-value materials from biomass by controlling thermochemical reactions

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Summary :

By controlling the thermochemical reactions based on the knowledge of the molecular-based pyrolysis mechanisms, we will develop a technology for efficiently producing high-value materials from woody biomass.

After the separation of woody biomass into two fractions, cellulose and matrix (hemicellulose + lignin), saccharification technology to obtain a high-concentration sugar solution more efficiently than the conventional method and production of BTX (benzene, toluene, xylene) and ther aromatic monomers will be studied by reaction-controlled fast pyrolysis and catalytic or plasma conversion. Furthermore, the production of useful chemicals from tannins and terpenes will also be studied from the viewpoint of controlled pyrolysis reactions.

http://www.ecs.energy.kyoto-u.ac.jp/