

## **SESSION 1B**

### **Enzyme Catalysis and Engineering**

## **Introduction to Session 1B**

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Enzymes are clearly recognized as a keystone technology for the production of fuels and chemicals from renewable feedstocks. Their specificity, performance under mild reaction conditions, and biodegradability make them ideally suited to widespread use in biorefineries around the world, and as the world puts greater and greater value on sustainable processes and environmentally friendly production methods, the further the development of enzyme technology grows in importance. This session focuses on the discovery, production, modification, and use of enzymes by bringing together 6 oral and 64 poster presentations describing the state of the art in enzyme technology.

The plenary session was designed to build from recent technology improvements to the existing biorefineries (wet or dry mills processing corn starch to a variety of products) to improvements that may assist in the development and commercialization of lignocellulose-based biorefineries. Beginning with a presentation on the effect of cellulase addition to a dry mill starch process, progressing to recent improvements in enzymes for the hydrolysis of non-gelatinized starch and lignocellulose, and ending with a presentation on the effect of poly(ethylene glycol) in lignocellulose hydrolysis, existing and future concepts for the use of enzymes in the biorefinery were addressed.

The articles presented in this volume cover a broad range of additional topics related to enzyme production and use. Improved fermentation methods for enzyme production, alternative recovery of active enzymes after fermentation, and formulation to increase enzyme stability and effectiveness are covered in many of the articles. In addition, a number of the articles present enzymatic methods for the production of novel chemicals or materials, which may, one day, be products of a future biorefinery.