



University of Hawai'i at Mānoa

## **Hawai'i Natural Energy Institute**

School of Ocean & Earth Science & Technology

### **Towards Sustainable Bioenergy in South Dakota**

The Center for Bioprocessing Research and Development (CBRD) was established by the Governor's 2010 Initiative for Economic Development and unites the bioprocessing R&D resources of South Dakota School of Mines and Technology and South Dakota State University. The goal is to develop new biomass-based process technologies for sustainable energy/economic development using carbon-neutral waste-free technologies that mitigate environmental impact of greenhouse gas emissions and combat climate change. The mission of the Center is to provide South Dakota with expertise in advanced/transformational technologies, research facilities, education, training and administrative support. Principle areas of research include: 1) Feedstock development/logistics; 2) Feedstock pretreatment; 3) Enzymatic hydrolysis; 4) Biochemical conversion to fuels/chemicals; 5) Thermo-chemical conversion to next-generation biofuels; and 6) Product recovery/downstream processing. CBRD engineers are utilizing extremophilic microorganisms with distinctive cellulolytic capabilities isolated from the former Homestake Gold Mine in Lead, South Dakota. The use of cellulolytic extremozymes in conjunction with thermotolerant ethanologens would allow saccharification/fermentation to proceed simultaneously at temperatures closer to optimal with added benefits of reduced cooling costs and risk of contamination. CBRD researchers are working on integration of high solids pretreatment, enzymatic saccharification and liquefaction with ethanolic fermentation for a cost-effective production of renewable bioenergy in South Dakota.

**Lew P. Christopher**

Professor and Director of the CBRD  
South Dakota School of Mines and Technology

**Thursday, November 12, 2009**

**3:00 – 4:00 PM  
POST 723**

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