

UNIVERSITY OF ALBERTA – FUTURE ENERGY SYSTEMS

BIOMASS

\$5.7M in research funding to 2023

11 active biomass projects

12 Principal Investigators and Co-Investigators

51 students & post-doctoral fellows

DEVELOPING FUELS FROM BIOLOGICAL SOURCES

We know how to make fuels from many types of biomass, but new potential feedstocks must be considered. To identify viable biomass energy sources, we must develop a more sophisticated understanding of the technological processes that can convert biomass to fuel, and assess the potential business cases for adopting feedstocks that might have other economic uses, or compete with established agricultural crops. We must also explore the potential of developing tailor-made fuels from biological sources for the transportation sector.

CURRENT RESEARCH PROJECTS

Advanced Biological Fermentation Process Development

Principal Investigator: David Bressler

Alberta Biojet Initiative (ABI): Upgrading of University of Alberta's LTH technology to Biojet

Principal Investigator: David Bressler

Biobattery - Decentralized Production of Fuel from Forest and Agricultural Waste

Principal Investigator: Amit Kumar

Bioconversion of Single-Carbon Effluents into Biofuels and Biofuel Precursors

Principal Investigator: Dominic Sauvageau

Catalytic Conversion of Bio-Based Feedstock: Bottom-up Design of Sustainable Processes

Principal Investigator: Samir Mushrif

Control of CI Engines for Efficient and Robust Biomass Utilization

Principal Investigator: Bob Koch

Current availability assessment of biomass resource in China and Canada and the potential for bilateral biomass trade to develop biomass co-firing in Chinese coal power plants

Principal Investigator: Amit Kumar

Development of Next-Generation Anaerobic Digestion System

Principal Investigator: Bipro Dhar

Hydrothermal Torrefaction of High Moisture Content Biomass

Principal Investigator: Amit Kumar

Investment Decisions and Policy Analysis

Principal Investigator: Marty Luckert

Synthesis and utilization of ether fuels from forestry biomass in diesel engines

Principal Investigator: Paolo Mussone

RECENT PUBLICATIONS

Improved bioethanol productivity through gas flow rate-driven self-cycling fermentation

Lead Author: Jie Wang

Enhanced biomethane recovery from fat, oil, and grease through co-digestion with food waste and addition of conductive materials

Lead Author: Bappi Chowdhury

RECENT NEWS STORIES

- New technique could accelerate waste-to-methane production
- Leaving bacteria behind

For the latest information:

futureenergysystems.ca/biomass

