Aston University
Engineering & Applied Science

Rigorous, Relevant **Research**

European Bioenergy Research Institute

Introduction

The European Bioenergy Research Institute (EBRI) will carry out world class research into all aspects of bioenergy ranging from fundamental research through development, to deployment of innovative technologies in collaboration with industry – as well as offering unique opportunities for joint activities between industry and researchers from all over Europe.

EBRI activities and complementary research at Aston University will integrate the work of local and national Universities. It will act as a focus for pan-European activities on scientific and technological aspects of biomass production, conversion and utilisation of products used for renewable power, heat, transport fuels and chemicals.

Sponsors and Funders

EBRI cooperates with the following industrial partners: EVONIK, Michelin, Utilicom, Sea Marconi, Schnell, Kebelmann, Johnson Matthey, Oxford Catalyst, Hangya, Raiffeisen, Hagewa.

Academic partners

EBRI will continue to establish global projects and collaborations with: India, including the proposed establishment of a 'Science Bridge'; Africa; South America; USA; and Canada. These collaborations will be a mixture of research partnerships and technology transfer opportunities.

Key projects

EBRI will contribute to the realisation of commercial scale facilities in "Energy Partnerships" with companies, authorities, public bodies and research partners throughout the UK and Europe, including:

- Providing heat and power supplies for the new EBRI facilities through pyrolysis, combustion and gasification technologies;
- Collaboration with local companies to help reach the CO_2 reduction ambitions of Birmingham for 2025;
- Collaboration with the Odenwald district in Germany to develop and establish the first highly integrated biomass based power plant with a negative CO_2 impact through carbon sequestration;
- Utilisation of ash rich biomass in existing gasification technologies via pyrolysis in Austria;
- Development of cost effective integrated pyrolysis/combustion units based on energy grass in Hungary.

Significant findings

- Pyroformer, a new system to pyrolyse and reform biomasses into high gas containing fractions
- Carbondioxide negative biomass power plant
- Transfer line for high molecular substances.

Patents

- Fluid injection unit – GB 0806210.1 – "Sampling of fluids for analysis"
- Combined pyrolysis reformer – GB 0808739.7 - "Thermal treatment of biomass"
- Carbon negative power plant – GB 0808740.5 - "Biomass processing."

Recent publications

- Hornung A, Sagi S, Marongiu A and Seifert H, 2008 "Evaluation of the formal kinetic parameters and degradation mechanisms for the pyrolysis of lignin by thermogravimetry mass spectrometry" Proceedings of the International Conference 16th European biomass conference and exhibition, Spain.
- Hornung A, Apfelbacher A, Richter F, Schneider D, Schoener J, Seifert H, Tumiatti V, Lenzi F and Franchi P, 2008 "Haloclean® – Intermediate pyrolysis – Power generation from rape" Proceedings of the International Conference 16th European biomass conference and exhibition.
- Hornung A, 2008 "Fast, intermediate or slow pyrolysis for fuels production, power generation from various Biomasses or as pre-conditioning unit for gasifiers" 18th International symposium on analytical and applied pyrolysis, Lanzarote, Canary Islands.
- Hornung A, 2008 "Fast, intermediate or slow pyrolysis for fuels production, power generation from various biomasses or as pre-conditioning unit for gasifiers" Porter Alliance at Imperial Special Seminar, Imperial College.
- Hornung A, Apfelbacher A, Lenzi F, Franchi P and Tumiatti V, 2008 "The Haloclean® Process – Pyrolysis/Heat and Power" Sustainable Energy UK: Meeting the science and engineering challenge.

Key contacts

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