



AALBORG UNIVERSITY
DENMARK

PhD Position within Pretreatment

Within the programme Science without Borders, Aalborg University is offering a PhD position at the Department of Energy Technology, Pontoppidanstræde 101, DK-9220 Aalborg East.

The position is administered and funded by the “Science without Borders” program through the Brazilian Federal Agency for Support and Evaluation of Graduate Education (CAPES). The theme of focus related to the position is listed as “Renewable Energy in the program. Acceptance of employment for the position is subject to the approval of grant from CAPES.

Common background

A primary focus for BioEnergy activities at the Department of Energy Technology (ET) is the sustainable production of 2G drop-in biofuels through hydrothermal liquefaction (HTL). As documented through literature as well as the work carried out at ET, HTL has proven to be a very interesting and promising alternative to other biofuel production routes. A major advantage of HTL is the high degree of feedstock flexibility, allowing it to convert feeds ranging from lignocellulosic biomass residues over dedicated energy crops to household and other organic waste streams. To significantly accelerate research in this topic, ET has invested more than €1 million in a new continuous HTL utility (the CBS1), which will be able to process biomass feedstock at a rate of around 25 kg/h at advanced process conditions. The unit will be installed at the ET labs in 2Q 2013. At the time of installation, it will represent the most advanced HTL research platform available for university research. To supplement this, feedstock preparation facilities as well as product analysis equipment is in place. Furthermore, full test of transport grade biofuels can be performed in engines and turbine test stands within the laboratory. The work carried out at ET is done in collaboration with both industrial entities and university partners in an international environment. For all of the topics described below, international exchange will be a part of the work.

Description: One of the major prerequisites for successful HTL of a biomass feedstock is the initial pretreatment of the feed. This topic will focus on obtaining optimum physical properties (ie size) of a feedstock as well as exploring the synergetic effects on *pumpability* of mixing two or more feedstocks. Furthermore, effects of different solvents in addition to the base water will be explored. The purpose of this topic is to be able to predict optimum feedstock mixes a priori for maximum oil yield.

Requirements

Applicants should have a background in either mechanical or chemical engineering, preferably with a good understanding of both. As experimental work will be a major constituent of this topic, any experience here must be documented. Furthermore, as the

working language will be English, proficiency hereof should be documented. Applicants may be selected for Skype interviews prior to being offered any position. All applicants should document academic qualifications at Master or Master of Science level.

Contact: Professor Lasse Rosendahl, e-mail: lar@et.aau.dk

To apply please see the link below:

<http://www.en.tek-nat.aau.dk/vacant+positions/Science+without+Borders/>