AALBORG UNIVERSITY
DENMARK

PhD Position within upgrading HTL oil to transport grade biofuel

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 the topic described below, international exchange will be a part of the work. 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.

Description: The focus of this topic is to take the final step towards producing a high quality, drop-in transport fuel on the basis of the oil produced through HTL. Drop-in properties are important in order to provide for full replacement of the original fossil fuel without requiring any modifications downstream from the drop-in point, including the end use technology. The primary targets are the heavy transport sectors – aviation, marine and heavy duty land – where a technological alternative are not likely to be developed within the next several decades, as it is for the light transport segment through electrical and hybrid vehicles. Optimized upgrading strategies will be designed and tested for HTL crude

oil, to produce diesel or jet fuel as efficiently as possible. As for topic 2, significant analysis work is included in this topic, as well as end use testing for engines and turbines.

Requirements

Applicants with a chemical or chemical engineering background will be preferred. Documented knowledge of oil refining technologies will be positively evaluated. Experimental experience should likewise be documented.

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/