

Research Grants for PhD students from the China Scholarship Council

Information Form (please read the guidelines carefully on the website www-csc.utt.fr)

Supervisor's name : Given names :

Status (prof., assistant prof., ...):

Laboratory : Website address :

Institution : Website address :

Scientific competence of the supervisor:

Chemical Reaction Engineering: Kinetics, Thermodynamic, Computer modeling
Calorimetry and thermal analysis

Two major publications in the field proposed for the PhD :

1.
2.

Website address of the personal page :

Supervisor's email :

Description of the research work proposed for a PhD

Topic # (see list) :

Title :

Subject :

Humanity is facing two major problems: climate change and use of non-renewable raw materials such as petroleum. Chemistry and its industry should participate to the global effort to tackle these problems. The future of chemical and related industries (oil, cosmetics, food, fertilizers...) is how to produce with less energy and CO₂ emission and with more renewable raw materials.

Biomass products are renewable materials, which are and could be used in industry. One of the main drawbacks of these materials is their complex chemical structure leading to multiphase reaction systems with several reactions. Biomass is usually composed of similar building-blocks. This project proposes to study the relationship between structure and reactivity of chemicals for biomass valorization. Biomass macromolecules have complex structure but have the same building-blocks, e.g., fatty acids for vegetable oils. Would it be possible to predict the kinetics and thermodynamics of biomass molecules by knowing the ones of their building-blocks? Besides, biomass can be treated by different alcohol solvents for the conversion of cellulose to levulinic acid or alkyl levulinates. Is there a relationship between the substituents of these solvents (e.g., ethyl for ethanol) and the kinetics and thermodynamics of the reaction?

Keywords :

Expected collaborations :

Background required from the applicant :

Existence of a PDF file detailing the proposal ("yes" or "no") :

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