

# Research Grants for PhD students from the China Scholarship Council

Information Form (please read the guidelines carefully on the website [www-csc.utt.fr](http://www-csc.utt.fr))

Supervisor's name :  Given names :

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

Laboratory :  Website address :

Institution :  Website address :

Scientific competence of the supervisor:

green chemistry, alternative activation techniques, continuous flow synthesis, sugar chemistry, organic chemistry and sustainable development, green oxidation

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 :

This research work is dedicated to the development of electrosynthesis processes applied to the transformation of bio-based molecules. The technology used will be electrocatalysis, the principle of which is to immerse electrodes, connected to a direct current generator, in the reaction medium, oxidation and reduction reactions will occur on their surface. By controlling the electrolysis current, it is possible to influence the reaction kinetics. In this case, the electrical activation replaces the thermal, catalytic, photochemical activations etc ... The electrocatalysis process allows us, unlike the conventional processes, to free ourselves from many stages of synthesis, from the use of chemical reagents corrosive and facilitates purification. Electrosynthesis applied to biomass is a powerful and elegant response to current economic and environmental challenges. This thesis will focus on:

- transformations by electrocatalysis of compounds from biomass.
- understanding of reaction mechanisms during electrosynthesis and control of feedback.
- development of a multipurpose laboratory reactor, contact surface, heat exchange, flow
- the production of sustainable bio-sourced chemicals and materials
- Characterizations of the compounds obtained through their physicochemical properties.

Keywords :

Expected collaborations :

Background required from the applicant :

He/she must have followed, as a priority, training in chemistry or physical chemistry and/or processes. Knowledge on electrochemical systems or catalysis will be particularly appreciated. CAD skills will be a plus. He/she must be dynamic, curious and persevering to carry out the development of new synthesis reactors, multiple syntheses, characterizations, tests and interpretations of the results, and demonstrate the ability to work in a team in several distinct scientific environments. Very good level of English will be essential.

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

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