

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:

M. Siroux is Full Professor at INSA - Icube Laboratory University of Strasbourg. She received her PhD in 1996 from the University Paris XII and the Accreditation to supervise research in 2008 from University of Valenciennes France. Between 2013-2019 Professor Siroux was Director of the Energy and Electrical Engineering Department in INSA and Director of a Research Chair "Innovative Walls". She leads a group of researchers and PhD students. Main field of her research are Energy efficiency in buildings and Renewable energy. Professor Siroux published about 100 research papers in international journals and international conferences and supervised over 10 doctoral students. She chaired many international conferences.

Two major publications in the field proposed for the PhD :

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Website address of the personal page :

Supervisor's email :

Description of the research work proposed for a PhD

Topic # (see list) :

Title :

Subject :

The building sector is the largest consumer of energy and there are still major scientific challenges in this field. The façade, being the interface between the exterior and interior space, plays a key role in the energy efficiency of a building. In this context, the PhD thesis focuses on the Innovative wall systems for zero energy buildings in the BIM context. Previous works in INSA Strasbourg ICUBE laboratory shows that innovative wall system (facade elements with switchable U-value, removable insulation system) can reduce significantly energy consumptions. Starting from this experience, a new concept will be conceived and tested: bioclimatic ventilated façade with encapsulated phase change material (PCM). An experimental study on the prototype will be conducted on the INSA Innovative Walls Metrology platform laboratory climatic chamber. Aim of this experimental study is to test the thermal response of the innovative wall system under different climatic conditions. Effects on thermal comfort will be taken into account. A thermal modelling and a sensitivity study will be undertaken. A comparison between experimental data and model will enable validation of the innovative wall system and will make possible the optimization of the innovative façade. Finally, a BIM methodology for building energy modelling will be studied.

Keywords :

Expected collaborations :

Background required from the applicant :

Specific knowledge: Programming in Matlab, Basic knowledge of multi-physical modeling.

Desired education: Master or Engineer (Bac + 5) with a specialization in Energy Engineering,

Desired personal skills: Motivation for innovation and the research in international context. Good writing skills, ability to analyze and summaries problems and adaptability.

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

(see guidelines on the website www-csc.utt.fr)