

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 : SIROUX Given names : MONICA

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

Laboratory : Laboratoire des sciences de l'ingénieur, de l'informatique et de l'imagerie (ICUBE) Website address : icube.unistra.fr

Institution : Institut National des Sciences Appliquées (INSA) de Strasbourg Website address : www.insa-strasbourg.fr

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. Between 2013-2019 Professor Siroux was Director of the Energy Department 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 and Renewable energy. Professor Siroux published about 100 research papers in international journals and international conferences and supervised over 17 doctoral students. She chaired many international conferences.

Two major publications in the field proposed for the PhD :

1. Q. TAN, M. SIROUX Evaluation and optimization of PCM-integrated walls: Energy, exergy, environmental, and economic perspectives *Renewable and Sustainable Energy Reviews* 222, 115922 2025
2. T. PFLUG, N. NESTLE, T. KUHN, M. SIROUX, C. MAURER Modeling of facade elements with switchable U-value, *Energy and Buildings*, Vol. 164, 2018

Website address of the personal page : https://ace.icube.unistra.fr/index.php/Monica_Siroux

Supervisor's email : monica.siroux@insa-strasbourg.fr

Description of the research work proposed for a PhD Topic # (see list) : V.4

Title : Buildings design based on bioclimatic performances

Subject :

INSA Strasbourg and GCE team of the Strasbourg laboratory ICUBE is a recognized player in the field of energy efficiency and renewable energies. This PhD thesis focuses on building design using a bioclimatic approach. Bioclimatic design employs passive strategies to achieve optimal indoor environmental quality while minimizing energy consumption. The methodology combines experimental studies and numerical simulations to estimate bioclimatic performance indicators under various climatic conditions. These indicators will inform the building design process, exploring multiple solutions based on renewable energies and local materials. Thermal modelling and a sensitivity analysis will be conducted. Finally, the indicators will be used to develop technical solutions for bioclimatic buildings.

Keywords :

Energy efficiency, renewable energy, bioclimatic buildings

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") : no

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