

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:

- Lattice Boltzmann method
- Computational fluid dynamics
- Thermal energy storage
- High performance computing

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 :

Thermal energy storage based on sorption, either physical or chemical, may reach very high energy densities and is therefore seen as a promising energy storage technology. For the time being however, the technology readiness level of such systems has remained low due to the poor understanding of the involved phenomena at microscopic level and the high computational demand of simulation at macroscopic level. The thesis will tackle both of these challenges in order to enable directed design in future. The proposed research work will be twofold: develop novel models of physical sorption based on mesoscopic methods such as the lattice Boltzmann method (LBM) or the link-wise artificial compressibility method (LW-ACM); implement these models in existing high-performance parallel LBM or LW-ACM codes. The expected outcomes are the reliable simulation of the adsorption and desorption processes within representative elementary volumes of sorbent materials such as zeolites.

Keywords :

Expected collaborations :

Background required from the applicant :

Existence of a PDF file detailing the proposal ("yes" or "no") :
(see *guidelines on the website www-csc.utt.fr*)

No