

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:

"Prof. Briois works on the development of thin film by reactive magnetron sputtering for more than 20 years in the energy and environment application (Solid Oxide Fuel Cell, catalyst, Sensors..). His competence domains are: elaboration, characterization of structural and microstructural properties, determine the electrical properties: ionic and electrical conductivity.

His is deputy director of MN2S department of femto-st institute, the head of surface platform, the member of the electrochemical society, the french community on fuel cell and member of steering committee of the FC Lab research.

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 :

Fuel cells show a significant interest due to their energy efficiency and nature of clean energy production (hydrogen) in today's energy sector. Among the various types of fuel cells, this thesis is focused on the solid oxide fuel cells operating at intermediate temperatures (IT-SOFC) around 700°C, in particular a anode support fuel cell. Decreasing this temperature to 700°C allows a reduction of cost manufacturing and increases the lifetime, in this case the new challenge is to avoid the performance losses.

The proposed work in this thesis involves the development of a thin layer based single solid oxide fuel cell (IT-SOFC) on anode support. The anode will be purchased from a supplier, and the magnetron sputtering for the bi-layer electrolyte, and due to the properties of the cathode, we could consider having the latter developed using soft chemistry technology (currently used) in order to be able to determine the intrinsic properties of the bi-layer electrolyte. Depending on the progress of the work, we could consider the synthesis of the cathode by reactive magnetron sputtering. The proposed method that constitutes all the fuel cell elements in very thin layers reduces the related electrolyte resistance and increases the active catalyst interface

Keywords :

Expected collaborations :

Background required from the applicant :

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

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