

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:

Crystalline engineering, crystal growth, inorganic synthesis (ligand, coordination polymers, complexes), coordination chemistry, X-ray single and powder diffraction, thermal analyzes, scanning electron microscopy (EDX), infrared and Raman spectroscopies, UV-absorption, steady-state and time-resolved luminescence spectroscopy, Luminescence at variable temperature and/or variable pressure.

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 project at the INSA Rennes focuses on the synthesis and characterization of novel homo and hetero-metallic coordination polymers. X-ray diffraction, TGA and scanning electron microscopy (EDS) analyzes allow to obtain the structure, the stability, the morphology and the composition of the new obtained phases. These polymers may exhibit porous, magnetic properties and especially interesting and modular photo-physical properties. These photo-physical properties are studied by luminescence spectroscopy (emission spectra, excitation spectra, lifetimes and quantum yields), luminance and colorimetry measurements. The polycarboxylate family exhibits a remarkable affinity with metallic ions, thus generating a significant antenna effect and energy transfers between the ligand(s) and the emitting center(s). The main objective of this project is to make a fine analysis and qualitative comparison of the various carboxylic ligands and metallic-based coordination polymers in order to identify the best candidates and to have a higher understanding of the photo-physical mechanisms governing the luminescence properties. For this, a multi-scale approach (chemical, physical and theoretical using DFT method) will be used to study the carboxylic ligands and the coordination polymers.

Keywords :

Expected collaborations :

Background required from the applicant :

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

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