

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, Linear and non-linear properties, 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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