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 : ZENG | Given names : Shuwen

Status (prof., assistant prof., …) : Chargée de recherche CNRS

Laboratory :	Light, nanomaterials, nanotechnologies (L2n), CNRS	Website address : l2n.utt.fr
Institution :	University of Technology of Troyes	Website address : www.utt.fr

Scientific competence of the supervisor:

Optics, Plasmonics, Photonics

Two major publications in the field proposed for the PhD :

1. Zhu, S., Rodolphe J., Aurélian C., Zeng, S., et al., Light: Science & Applications - Nature, 2024
2. Flavien, B., Georges. H. Zeng, S., et al., Biosensors and Bioelectronics: X, 2023

Website address of the personal page : https://orcid.org/0000-0003-2188-7213

Supervisor's email : shuwen.zeng@cnrs.fr

Description of the research work proposed for a PhD ***Topic # (see list) :*** I.3

Title : Design of microfluidic chips for optical applications

Subject :

The PhD student will develop the techniques for generating and manipulating micro-droplets. She/He will also be produced micro-fluidic systems adapted to micro-droplets which allow chemical syntheses to be carried out by merging micro-droplets, to separate a micro-droplet into several micro-droplets to carry out parallel analyses. His/her expertise in this field of micro-drops will be complementary to the activities that we carry out within the L2n Lab of UTT/CNRS. In this perspective, we would like to combine our expertise in the fields of optical and plasmonic characterization and the manufacture of optical fibers to develop an optical detection system based on micro-droplet technology.
During her/his stay at the L2n research institute, the student will introduce us to the (emerging) technology of micro-drops. Then we will adapt a plasmonic characterization bench to its “micro-droplet” circuits to carry out the first characterizations, detection of substances conveyed by micro-droplets. Then, we will work together to achieve a compact integrated system, using fiber optic technology.

Keywords :

Optics, Plasmonics, Photonics

Expected collaborations :

Nanyang Technological University (Singapore), Columbia University (USA)

Background required from the applicant :

A solid knowledge in physics, in particular optics, photonics and plasmonics.

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

(see guidelines on the website www-csc.utt.fr)