

## PhD proposal « *LiFi transmission with organic components* »

**University:** *Université de Versailles Saint-Quentin en Yvelines, FRANCE*

**Laboratory:** *LISV: Laboratoire d'Ingénierie des Systèmes de Versailles, Université de Versailles Saint-Quentin*

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**Title of the proposal:** « *LiFi transmission with organic components* »

**Skills:** electronics, optoelectronics, embedded electronics (VHDL, FPGA, etc) and knowledge on informatics and general physics

**Subject:**

The PhD student will work at the LISV/UVSQ laboratory as part of the collaboration with the start-up OLEDCOMM. His work will focus on activities related to VLC / Lifi (Light Fidelity), that is to say, the digital data transmission via visible light of LEDs. This growing field requires upstream research in order to develop in the future new products.

The laboratory is involved in LiFi transmission, especially in automotive field since 2007 (with a lot of collaboration with major companies in automotive industry). A startup, OLEDCOMM is born from the laboratory in 2012. Several thesis have been defended on this topic [1]. The previous works have mainly been developed on LiFi receiver based on silicium photodetector component. With new technologies developed in organic component production, new components are appearing that can be used for LiFi. The emitter can be OLEDs components and the receiver can be OPV or OPD components. Each of them have their advantages and drawbacks, but some groups of research have demonstrated already few Mbits/s rate of transmission by LiFi with such components.

The LISV and OLEDCOMM are already working on this topic. The PhD student will be in charge to develop a system of transmission based on LiFi that integrates such components ; a first part will concern the bibliography, a second part the simulation and a third part aimed to make a prototype.

[1]<http://www.lisv.uvsq.fr/lisv-laboratoire-d-ingenierie-des-systemes-de-versailles/langue-fr/actualites/soutenances-de-theses/etude-realisation-et-optimisation-d-un-systeme-de-communication-par-lumiere-visible-application-au-domaine-de-l-automobile-par-alin-mihai-cailean-340525.kjsp?RH=1311755260155>