

## PhD positions

Ecole/Institution/Société:

**Aix-Marseille University, France / Marseille**

Discipline:

**Image Processing**

Type d'emploi::

**Full-time**

Date de publication:

**2022-03-12**

Personne à contacter:

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### **Post-doctoral position « Optoelectronic characterization of imaging sensors**

IM2NP, an Aix-Marseille University/CNRS joint research unit, invite applications for a post-doc position. The proposed research study enter in the framework of a technological project funded by the AMIDEX fundation.

The objective is to set up a complete test bench devoted to the optoelectronic characterization of CMOS Imaging Sensors (CIS). The successful applicant will join the LUMEN-PV team at IM2NP with expertise in optoelectronic, photonic and photovoltaic. He will work in the frame of a collaboration between IM2NP and a company.

The latest results obtained at the IM2NP laboratory on CIS and the optical performances are very promising. In order to go further in the mastery of devices, and in the improvement of the CIS performance, a fine and precise metrology is a key element of the success of the project.

#### **Objectives of the post-doc based on the current state of the art:**

First, the future applicant will have to test the optical performances of the CIS pixels provided by our partner company. It will consist of a set of optical measurements among this spectrophotometric measurements, scattering measurements, and Raman measurements. All these equipment are available in the laboratory and must be adapted to our structures.

Secondly, in the laboratory, we will carry out characterizations of the CIS device itself. CIS, including the reading circuits and the acquisition cards, will be supplied by the company and tested on a bench that we will develop at IM2NP. The illumination source and the spectrophotometer will be provided by the IM2NP.

An adaptation of a spectral response measurement bench that we have in the laboratory will be carried out in order to meet the flow response constraints of one pixel or several pixels. In particular, the optical setup allowing an accurate measurements of the source flux and of the ambient scene will have to be defined.

A demonstration platform capable of performing measurements on pixels of different sizes, and on different architectures of imagers will also be provided by the company. In this case, it will be necessary to develop the test methods adapted to our devices. This will require programming for the automation of the equipment and the recovery of data from the imagers via the associated

electronic boards (with the associated acquisition chain, by Python and OpenCv type programming). This test bench will be the key of the success of this project, allowing an accurate measurement of the CIS response.

We are seeking PhD applicants with a background in: materials sciences, opto-electronic characterization, photonic. Good English level required, and writing scientific communications (A level publications required). Of particular interest are candidates with experience in both electrical and optical characterization of semi-conductors or devices. She/he is dynamic and a self-starter.

**Applications:**

Send CV and cover letter by email to:

Dr. Judikaël Le Rouzo (IM2NP): [judikael.lerouzo@im2np.fr](mailto:judikael.lerouzo@im2np.fr)

Personne à contacter:

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