

GENERAL INFORMATION

POSITION TITLE : POSTDOC (M/W) : Development of innovative plasma etching processes for color filters in imagers

WORKPLACE : LTM Grenoble

KIND OF CONTRAT : Post Doc

DURATION : 12 months renewable once

EXPECTED EMPLOYMENT START : 01/11/2024

TIME POSITION :100%

WAGES : Between 2991€ and 3417€ gross

UNIVERSITY LEVEL : PhD

EXPERIENCE : Beginner

MISSIONS

As part of the Nano2026 project, one of LTM's tasks is to develop etching processes for the fabrication of imagers, in collaboration with STMicroelectronics.

The aim of this postdoctoral contract is to develop plasma etching processes to improve the current fabrication process for a Bayer grid of colored filters. The Bayer grid is a mosaic of colored filters placed on the photoelectric cells of a photographic sensor, enabling colors to be separated and then reproduced on the image. The reduction in the size of these filters makes their fabrication more and more complex, especially as controlling the roughness of the colored pixels becomes critical at high resolution. This has led to two main problems: i) at the end of the process used to obtain the Bayer grid, the surface of the grid containing different colored resin dots is not flat, ii) the green resin dots obtained after the standard optical process are tapered, which introduces problems during the subsequent optical printing stages of the red and blue resins. LTM has the expertise and equipment needed to successfully develop plasma processes for flattening the surface of the Bayer grid and structuring the green colored resins with smooth, anisotropic sidewalls.

ACTIVITIES

1. Study the impact of plasma etching chemistry and process parameters on resins of different colors.
Development of etching processes enabling :
 - To produce a flat surface containing different resin dots
 - Structuring of green colored resins with smooth, anisotropic sidewalls
2. Characterization of morphological properties of structures after etching
 - Metrology: Profilometry, AFM, SEM
3. Characterizing the optical properties of etched structures
 - Ellipsometry and optical indices

BACKGROUND AND KNOWHOW

- Experimental and theoretical skills: Plasma etching, morphological and optical characterization techniques
- Operational know-how: Word, PowerPoint, Excel
- Soft skills: Dynamism, intellectual curiosity, teamwork

CONTEXT OF THE POSITION

LTM is a CNRS/Grenoble Alpes University/Grenoble INP joint research unit, comprising 2 research divisions with a staff of around 90 employees. The laboratory is located on the CEA-LETI site in Grenoble.

The postdoc will work in the PROSPECT research group, which conducts advanced technological research in close collaboration with the microelectronics industry. Its aim is to develop innovative processes and materials to meet the needs of emerging opto- and nanoelectronic devices.

RISKS AND TRAINING

Clean Room working: Training on site

CONTACT

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