

Figure 2 : Synthèse de nouvelles molécules dérivées de la 1,3,5-triazine.

Après le développement des nouvelles molécules dérivées de la 1,3,5 triazine, le candidat étudiera le passage de la synthèse de l'échelle laboratoire à celle de l'échelle pré-industrielle. Afin de préparer au mieux la future montée en échelle, le candidat optimisera chaque étape de synthèse avec une vision scale-up des synthèses.

Le candidat aura notamment pour mission :

- L'utilisation de calculs théoriques: (Gaussian: DT-DFT..)
- La détermination et l'optimisation des conditions de synthèses.
- La purification des molécules.
- L'identification et validation des structures par GC, RMN (^1H , ^{13}C , ^{19}F) et LC-MS.

Ce travail s'inscrit dans le cadre d'un consortium entre la start-up LABKICOSMOS et le laboratoire UCCS de Lille. Le candidat aura donc la possibilité de rejoindre la start-up à la fin de la thèse.

PROFIL RECHERCHE :

Nous sommes à la recherche de candidats avec un master II chimie motivés par cette thématique. Des connaissances en synthèse organique/ ou chimie sont requises. La thèse est à pourvoir pour octobre ou novembre 2020. Merci d'envoyer votre cv et votre lettre de motivation à :

admin@labkicosmos.com et mathieu.sauthier@univ-lille.fr

PhD, Thesis offer: Synthesis and scale-up of organic (TADF) molecules used in the 3rd Organic light emitting diodes (OLEDs) generation

LABKICOSMOS is a french start-up located in LILLE, France, working in organic-electronic industry. We aim to help the growth of organic-electronic market with our cost effective and high-quality materials.

CONTEXT OLED is the latest technology that is shaping the future of the display and lighting segment as we move away from traditional LED and LCD technology. OLED technology offers crisper resolution, flexible ultra-thin structures and at the same time consume less power.

OLED's structure consists of various layers. One of the most important layers is called Emissive layer (EML). The scheme below illustrates an exemple of OLED with an EML derivative of the 1,3,5 triazine developed by the start-up LABKICOSMOS.

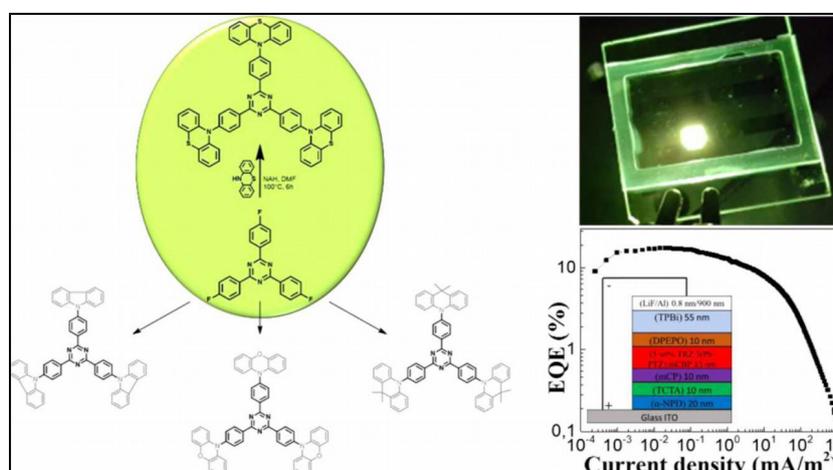


Figure 1 : Synthesis of the 1,3,5 triazine derivative molecules used in the EML.

POSITION:

We are seeking to recruit a PhD candidate for the development of small molecules used in organic light emitting diode "OLED". The perspective of the project research is the synthesis of new molecules derivatives of the 1,3, 5 triazine as depicted in figure 2.

A cost-effective synthesis process, as developed by the start-up, will be used for these new molecules. The applicant will then work on the scale-up of these molecules.

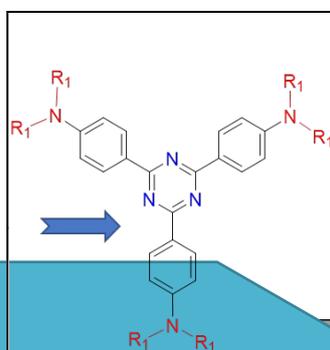


Figure 2 :Synthesis of new derivative molecules from the 1,3,5 triazine

The candidate will be expected to work in different disciplines.

- Theoretical calculations: (Gaussian: DT-DFT...).
- Synthesis and process optimization.
- Purification of molecules.
- Characterization of molecules: GC, NMR (^1H , ^{13}C , ^{19}F) and LC-MS.

The research is a collaboration between the start-up LABKICOSMOS and the UCCS laboratory of Lille, France. After the thesis, the candidate will possibly join the start-up.

QUALIFICATIONS :

A highly motivated candidate is actively searched. You must have knowledge in the field of synthesis organic chemistry or comparable qualifications. The post requires a Master degree or equivalent in chemistry. Prior experience in the following fields is desirable: Organic-electronic, Optical...

To apply, please send your CV at :

admin@labkicosmos.com et mathieu.sauthier@univ-lille.fr