

PhD position in Rennes (France) :

Synthesis of novel heteroaromatics for optoelectronic applications

Pi-conjugated heterocycles for optoelectronics are increasingly studied, and among heteroaromatics, the N-heterocycles are highly appealing because their properties can be easily tuned both by their N-substituents and the nature of the heterocycle.

In the frame of this [ANR project](#), we aim at developing the chemistry of a new family of aza-aromatics, namely tetrazo[1,6-b]indazole, featuring a high N-content. The recently obtained tetrazo[1,6-b]indazoles are highly fluorescent and strongly electron-deficient. Accordingly, the objectives of the PhD project are: 1) to explore the chemical reactivity and to extend their synthetic approach (in particular, the PhD student will also spend time under the supervision of J. Roger at [ICMUB](#) (Dijon, France) to develop catalytic approach toward the molecules). 2) to optimize their molecular engineering for optoelectronic applications by enhancing the light-harvesting, favoring their self-assembly properties and tuning their luminescence. Optical and redox properties of the compounds will be systematically studied. The most promising molecules will be tested in opto-electronics devices such as non-fullerene acceptors for solar cells and thermally-activated delayed fluorescent emitters for organic light-emitting diodes, in the frame of the collaboration network of the laboratory. The recruited PhD student will have the opportunity to be trained in these techniques.

Application: *Master degree in molecular chemistry or equivalent diploma. A strong background in organic synthesis and interest in physico-chemical studies are required.*

Starting: Sept/oct. 2022.

Salary : 1650 € /month

Localization: [Institut des Sciences Chimiques de Rennes](#) (France).

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Relevant references: (1) [Angew. Chem. Int Ed. 2016, 55, 5555](#) (2) [Chem. Eur. J. 2020, 26, 8226](#); (3) [Angew. Chem. Int. Ed. 2020, 59, 1149](#) (2) [Chem. Commun. 2021, 57, 7256](#) (3) [Chem. Commun. 2022, 58, 88](#)