



## Postdoctoral Researcher Position in Coordination Chemistry for Health

**Location:** University of Lorraine, L2CM, Nancy, France

**Contract:** CDD of 18 months (acquired funding)

**Starting date:** May 2025

**Keywords:** Organic chemistry, Coordination chemistry, Optical imaging, Photothermal therapy.

**Overview:** Photothermal therapy (PTT) is a highly promising therapeutic option to overcome resistance in cancer therapy. PTT relies on light-to-heat conversion by a photothermal agent. Iron(II) complexes have shown very promising properties as photothermal agents, reaching temperatures far beyond those required in PTT at low millimolar concentration.[1,2] Iron(II) complexes are also active in photoacoustic imaging (PA), an emerging medical imaging technique.[2,3] Therefore, the aim of this project is to synthesize and study iron(II) complexes for photoacoustic imaging guided photothermal therapy.

### Objectives:

- Synthesize a library of polydentate ligands
- Coordinate to iron(II) center
- Explore their structure-optical properties relationship
- Rationalize their structure-PTT activity relationship

**Working environment:** The 'Laboratoire Lorrain de Chimie Moléculaire' (L2CM) is a dynamic laboratory bringing together chemists developing organic and inorganic small molecules or nano-sized objects to solve societal problematics in health and energy transition. The position is on our site in Nancy, in the team 'Ingénierie de Complexes Métalliques' (InCoMe) which combine strong expertise in organic chemistry, coordination chemistry, bioinorganic chemistry and photophysics.

### Qualifications and competences:

**Education:** PhD in Synthetic Organic Chemistry, Coordination Chemistry or related fields

**Technical skills:**

- Design and synthesis of organic ligands and coordination to transition metals
- Spectroscopic and structural characterization techniques (NMR, mass spectrometry, UV-visible absorbance...)
- Knowledge in optical imaging and anticancer therapy are a plus
- English proficiency (spoken & written)

**Application (deadline March 2<sup>nd</sup> 2025):** Send a CV, a brief summary of your research experience and two reference names to Dr. Mathilde BOUCHÉ ([mathilde.bouche@univ-lorraine.fr](mailto:mathilde.bouche@univ-lorraine.fr))

### References :

- [1] L. Zhang, S. Ma, T. Wang, S. Li, L. Wang, D. Li, Y. Tian and Q. Zhang, *Anal. Chem.*, 2023, 95, 2, 1635–1642.
- [2] M. Delcroix, A. Reddy Marri, S. Parant, P. C. Gros and M. Bouché, *Eur J Inorg Chem*, 2023, e202300138.
- [3] A. Steinbrueck and J. Karges, *ChemBioChem*, 2023, 24, e202300079.