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PhD POSITION
New Ferromagnetic nanoparticles for water remediation

Position: 36 months from September 2022
Key words: Organic synthesis, Magnetite, Organic pollutants, Supramolecular chemistry, Cyclodextrin, Solid support chemistry, Analytical chemistry
Financial support: Normandy Region funding (1499.70 euros/month, net salary)

Objectives: Our ambition is to develop a new support based on magnetite functionalized with specific ligands able to capture organic compounds. The pollutants will be extracted from industrial water and environment. The project will be based on synthesis of new ligands and the covalent immobilization on solid support. The capture/release/recycling cycles will be studied. This project is the opportunity for the candidate to learn various analysis (NMR, mass, IR, TEM, titration, ICP, kinetics…). This innovative remediation process will reduce the energy cost, save water, limiting economic dependence and preserve resources.

Scientific team: This project is based on interdisciplinary fields and could be in collaboration with industrial companies.

Candidate profile: The candidate M2 or engineer should have a background in synthetic organic chemistry, be creative, and highly motivated to join a multidisciplinary research team. Knowledge in the practice of supramolecular chemistry and a background in analytical chemistry and surface physicochemistry will be considered as an asset. Chemist exhibiting an interest in remediation and industrial partnership would be preferred.

Document to be sent to Prof. Gouhier: Before the 1st June, CV, motivation letter, L3-M2 notations, referent contacts, Summary of M2 project (< 3 pages).

Host laboratory: UMR 6014 CNRS (COBRA) based in Rouen (Normandy). The research developed within COBRA (BioOrganic Chemistry group) is oriented towards organic chemistry and analysis. In terms of excellence in scientific research and training, the UMR 6014 COBRA is integrated in the National Laboratory of Excellence in Organic Chemistry (Labex SynOrg). The laboratory is also a member of the Carnot I2C and the University Research School XL-CHEM. This triptych XL-Chem – SynOrg – Carnot I2C is now part of a unique continuum at the national level Training - Research – Technological Transfer in the field of chemistry with strength links with industries.