

- **Nom de l'entreprise** : Magpie Polymers

- **Ville et code postal** : 77140 St Pierre Les Nemours

- **Nom du laboratoire académique partenaire** : Institut de Chimie Moléculaire de l'Université de Bourgogne (ICMUB) - équipe P2DA - Université de Bourgogne–Franche Comté - Faculté des Sciences Mirande - 9 Avenue Alain Savary - BP 47870 - 21078 Dijon Cedex

- **Numéro de reconnaissance du laboratoire** : UMR 6302

- **Thématique de recherche** :

Séparation chimique des métaux du groupe du platine à l'aide de résines extractantes innovantes à base de phosphines. Chemical extraction of platinum group metals by innovative polymeric phosphine-containing resins

- **Descriptif de la thématique de recherche** :

The selected candidate will conduct research in the field of solution coordination chemistry and solid/liquid extraction of platinum group metals (PGM). The aim of the project is to get a deep understanding of the thermodynamic speciation of PGM elements in liquid streams produced by the metal refining industry and to investigate the ligand-exchange processes from a kinetic and mechanistic point of view. The main task of the candidate will be to acquire new reliable and relevant physico-chemical data that are required for optimizing the recovery of the precious metals by solid/liquid extraction using specific resins manufactured by Magpie Polymers.

Various spectroscopic techniques available at ICMUB will be combined with DFT calculations and process simulations performed in the R&D laboratory of the industrial partner. Hence, he/she will have a unique opportunity to be involved in both fundamental and applied research oriented towards the development of new extracting agents and their implementation in industrial extraction processes by Magpie's customers.

The applicant will share his/her work time between the academic institution in Dijon and the industrial company based in St Pierre Les Nemours, 1 h south of Paris.

- **Descriptif du poste** :

Magpie Polymers in partnership with ICMUB is seeking to apply for a joint 3-year PhD fellowship starting early 2016 and funded by the CIFRE program (<http://www.anrt.asso.fr>). The successful candidate should have obtained a Master degree with honors in chemistry or chemical engineering after 2012. He/She is expected to have a strong background in solution chemistry, coordination chemistry, hydrometallurgy, or solid/liquid partitioning. Good proficiencies in analytic/instrumental chemistry and/or molecular modelling (DFT) are a plus.

Curiosity, interdisciplinary interest, autonomy, and good communication skills in English are of primary importance. The candidate will have to interact with academic researchers from various scientific fields, the team at Magpie, as well as researchers and engineers working for the mining and metal refining industry.

Magpie Polymers, founded in 2011 as a spin-off from the Ecole Polytechnique, manufactures proprietary metal-scavenging resins with extreme selectivity and high performances. The technology is designed to optimize recycling and refining processes of valuable metals (e.g. palladium, platinum, iridium, rhodium and gold) that would otherwise be lost in waste-water. This creates value for customers using Magpie products, whilst going towards a more efficient use of increasingly rare

resources. The innovation of Magpie is the chemical functional groups that are suited to selectively remove rare and precious metals from complex effluents, including concentrated acid and oxidizing solutions better than any other solutions available on the market today.

ICMUB has a long-standing activity in the purification/decontamination of liquid effluents by solid/liquid extraction; it holds several patents on that topic (CEA, CNRS) and was awarded one of the 2009 ADEME prizes "Prix des Techniques Innovantes pour l'Environnement" for the design of functional mesoporous lead-extracting materials. The laboratory is well equipped for conducting metal speciation studies, determining stability constants, and performing kinetic studies in homogeneous phase.

- Date de recrutement : début 2016
- Adresse e-mail à laquelle le candidat doit envoyer sa candidature :

Applications should be sent by e-mail, as a single PDF file containing

- a letter of intent,
- a detailed CV,
- a copy of the grades obtained during the master (M1&M2) or engineer school studies (for all 3 years) to both academic and industrial contact persons :

Contact at ICMUB

Dr Michel MEYER

Chargé de Recherche CNRS (HDR)

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