

Offer of Post-doc position for 12 months

«Synthesis and Characterization of New Functional Fluorinated Copolymers for Transparent Soils»

Financial Support: European Union

Starting Date: April 2019

Place: Institute Charles Gerhardt Montpellier (CNRS UMR 5253); Team « Ingénierie et Architectures Macromoléculaires »

Supervision: Bruno AMEDURI and Vincent LADMIRAL (CNRS Researchers)

Description of the project: the objective of this project aims at developing a new generation of transparent soils that measure the biological and chemical status of soils. This will enable, for the first time, to characterise transport at the surface of soil particles and to elucidate the role of root–particle–particle contacts, exudation and microbial transformation on the bioavailability of nitrate and ammonium. The consortium will combine the expertise of the three partners: biology of soils, plant biology, optics, chemical engineering, chemistry to image and characterise nitrogen movement in soil at the micro-scale. The contribution of IAM team deals with the synthesis of fluorinated copolymers with low refractive index (as low as that of water) to produce some such transparent soils. They can be obtained by radical co- or terpolymerization of two or three specific fluorinated monomers, each of them bearing appropriate function to allow some nutrients to plants, to lower the hydrophobicity, and to be able to be characterised optically by another partner.
The project started 3 years ago and the team has already progressed.

Required skills and knowledge:

Very good English language proficiency (monthly conference calls)

Radical copolymerization

NMR (^1H , ^{19}F , ^{13}C) and IR spectroscopies

Polymer characterization techniques (TGA, DSC, GPC)

Some knowledge on surface characterization (SEM, XPS, AFM) would be beneficial.

The candidate should be autonomous and able to manage part of the research project.

To apply, please send CV and cover letter by email to : bruno.ameduri@enscm.fr or vincent.ladmiral@enscm.fr