Research Positions in Soft Matter

Positions' Description

1) Soft Matter Synthesis Position

One (1) Position in Green Soft Matter chemistry and characterization. The project will focus on the preparation, functionalization and characterisation of carbohydrate (cellulose nanocrystals (CNCs), cellulose nanofibers (CNFs) and hemicelluloses) and lignin-based materials from wood waste, for application in membrane and coating technologies. Expertise in polymer synthesis and macromolecular characterization techniques will be highly appreciated.

The project will take place in collaboration with the group of Prof. Markus Antonietti at the Max-Planck Institute for Colloids and Interfaces (Potsdam, Germany).

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2) Experimental Position in Soft Matter

One (1) Position in experimental research on Green Soft Matter systems (such as cellulose and lignin-based systems, clays and mixtures) with emphasis on characterisation techniques (involving, scattering and advanced microscopy), mechanical properties (including rheometry in combination with in-situ microscopy and scattering) as well as development of new experimental protocols involving advanced optical methods and AFM. The candidate will also be involved in building a new apparatus combining advanced optical methods (such as DDM) in combination with home-made shear cells and commercial rheometers. He/she will also have the opportunity to perform complementary computer simulations.

Collaborations are foreseen with the group of Prof. Roberto Cerbino at the University of Vienna (Austria) and the group of Prof. Hans-Jurgen Butt at the Max-Planck Institute for Polymers (Mainz, Germany).

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3) Computational Modelling Position(s)

One to two (1-2) Positions in computational modelling in Polymeric and Colloidal Systems with Emphasis in novel methodologies involving hierarchical simulation approaches across scales and incorporating hydrodynamic interactions. The idea is to develop new computational tools and methodologies and implemented them in systems of technological importance, such as polymer-based complex materials, colloids, gels etc., with a Green spin, as for example systems involving cellulose and lignin.

The project(s) will be in collaboration with the groups of Kurt Kremer at the Max Planck Institute for Polymer Research (Mainz, Germany) and of Christos Likos at the University of Vienna (Austria).

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