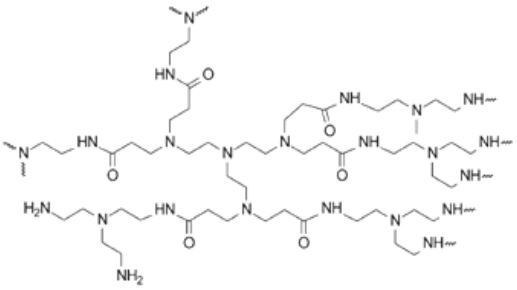
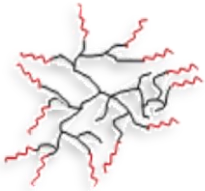
One PhD position available in Toulouse (France) Starting in October 2011

Synthesis and self-organization of hyperbranched copolymers stimuli responsive in water and in ionic liquids

Hyperbranched polymers (HBP) are dendritic macromolecules, highly branched, globular, polydisperse and easy prepared via one-step reaction. The interest of these structures is growing rapidly in last year's due to their specific properties including low viscosity, high solubility in various solvents and presence of a large number of functional end groups. Thus a large number of applications such as polymer coatings, resins, rheology modifiers, encapsulation and transport of biological molecules have been recently described.[1]





Within the framework of this thesis, we plan to design amphiphilic core-shell HBP sensitive to external stimuli like temperature, the pH and salinity… After their synthesis and characterization, the stimuli-dependent self-assemblies of these compounds in water and in different ionic liquids will be studied. These aggregates will be used for different applications such as nanocarriers between an organic phase (IL) and an aqueous phase but also in the design of smart materials formed by combination of polymer and ionic liquid in controlled nanostructures.
Used techniques: electronic microscopy, scattering methods (DLS, SANS), DSC, NMR, SEC ...

The net salary is about 1400 Euros/month. To apply, please send a CV and a motivation letter to viguerie@chimie.ups-tlse.fr before the 20th of April.

References :

[1]Gao C, Yan D. Prog Polym Sci. 2004;29:183-275.
[2]Krämer M, Pérignon N, Haag R, Marty J-D, Thomann R, Lauth-de Viguerie N, Mingotaud C. Macromolecules. 2005;38:8308-15.
[3]Radowski MR, Shukla A, von Berlepsch H, Böttcher C, Pickaert G, Rehage H, Haag R. Angew Chem Int Ed. 2007;46:1265-9.

Contact :	Laboratoire des IMRCP
Nancy Lauth-de Viguerie, viguerie@chimie.ups-tlse.fr (+33) 5.61.55.61.35	CNRS, UMR 5623 Université Paul Sabatier, 118 route de Narbonne 31062 Toulouse cedex 9 FRANCE http://imrcp.ups-tlse.fr