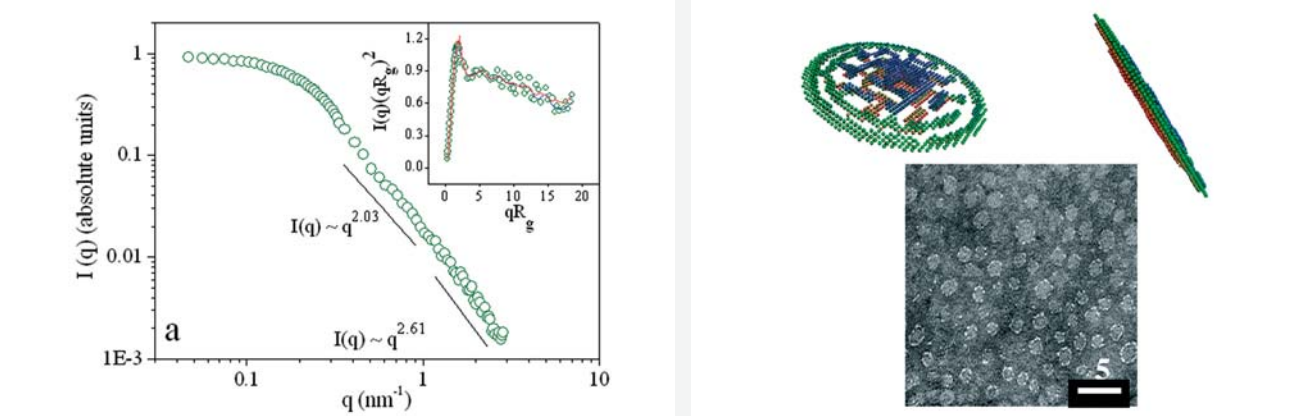

Form factor (SANS) of F1 at 25°C in D2O 50 mM NaCl, ab initio model and cryoTEM picture

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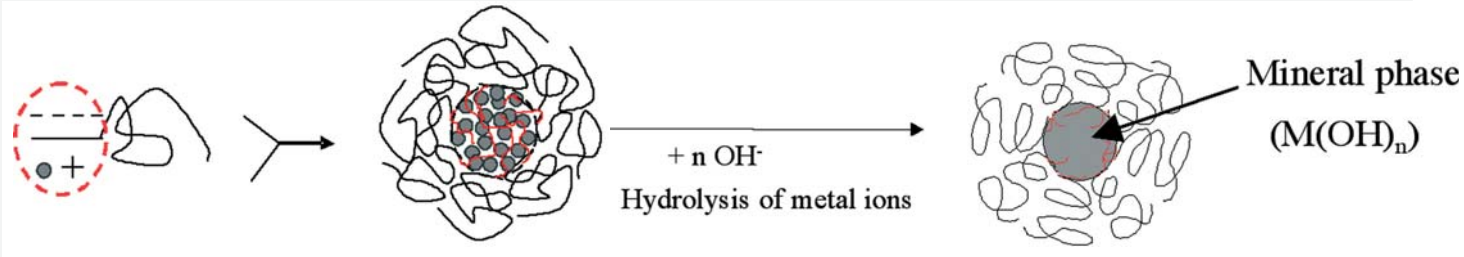
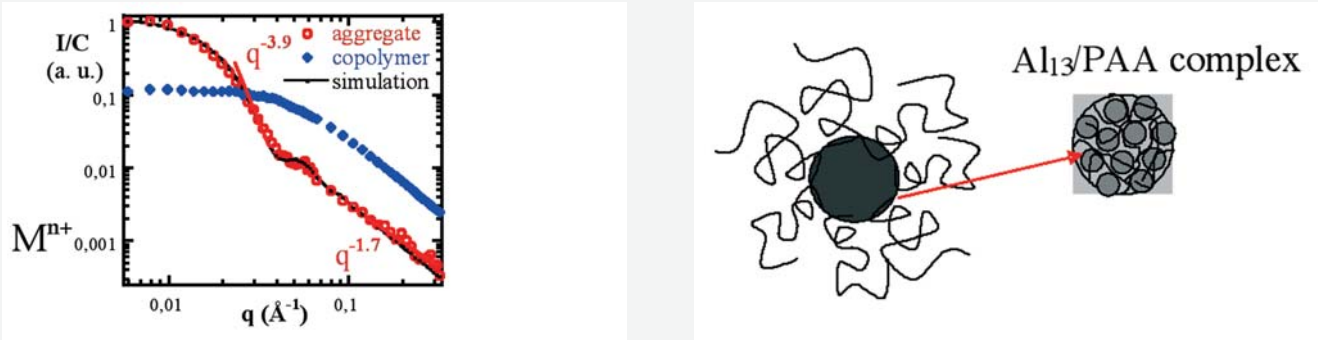
[*C10.* C. Gerardin] **Hybrid polyion complex micelles precursors for Highly stable metal [C. hydroxide colloids].**
Anionic-neutral double hydrophilic block copolymers are used to control the growth and morphology of inorganic particles and directly prepare sterically stabilized suspensions of metal hydrous oxides. Metal hydroxides are obtained by hydrolysis of metal cations in the presence of the copolymers. The metal-complexing polyelectrolyte block ensures a *controlled growth of the inorganic phase* since the complexing functions act as poisons of the inorganic polycondensation reactions, whereas the neutral block ensures steric stabilization of the colloids.
The first synthesis step is the *induced assembly* of the copolymers in the presence of the oppositely charged multivalent inorganic species. The formation of the hybrid polymeric-inorganic nanoaggregates is induced by complexation of the inorganic ions. The micellar aggregates present a core-corona architecture characterized by scattering techniques (SANS and DLS).
The micelles are then used as *adjustable supramolecular precursors* for the formation of metal hydroxide particles. Hydrolysis of metal ions in the micellar core leads to *mineralization* of the colloids. The size of the stabilized particles can be tuned by adjusting the copolymer-to-metal ratio, the metal prehydrolysis ratio and the polymer block lengths. Finally, the morphologies of the hairy particles vary with the nature of the metal and with some synthesis parameters.
Gérardin et al Angew. Chem. Int. Ed., **2003**, 42, 31, 3681. Sanson et al. Phys. Chem. Chem. Phys., **2004**, 6, 1463.
[Collaboration : C. Gerardin, N. Sanson, M. In, L. Auvray, UMR5618 ENSCM UM1 CNRS Montpellier]





Comparison of SANS curves : Polymer alone (blue) and aggregate (red) of **Al_{13} + PAA 1900 -b- PHEA 8200**, at the same polymer concentration.