



Optimisation de l'extraction liquide-liquide par l'utilisation d'un extractant hydrotrope: le salicylate de sodium

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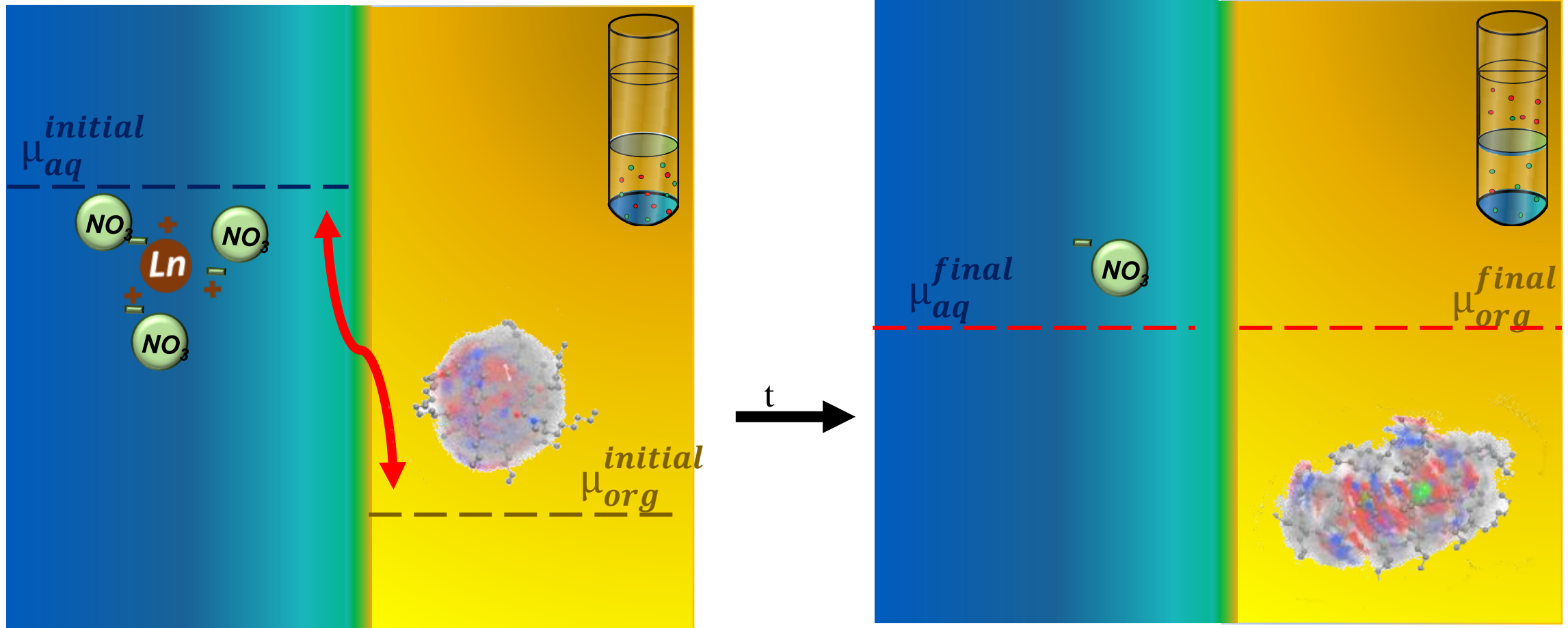
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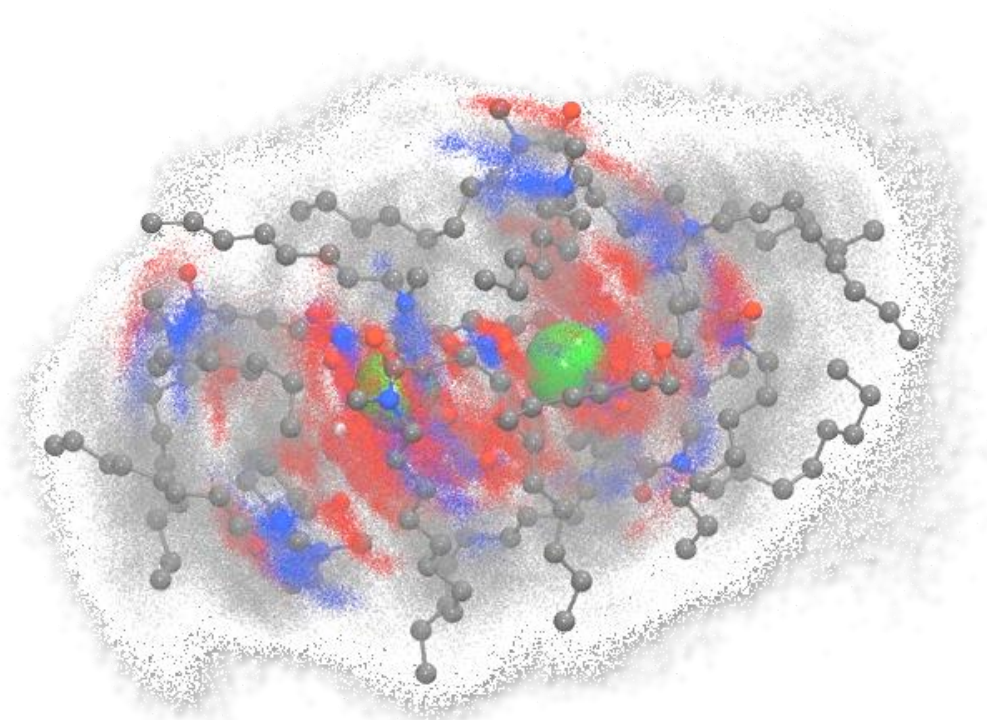
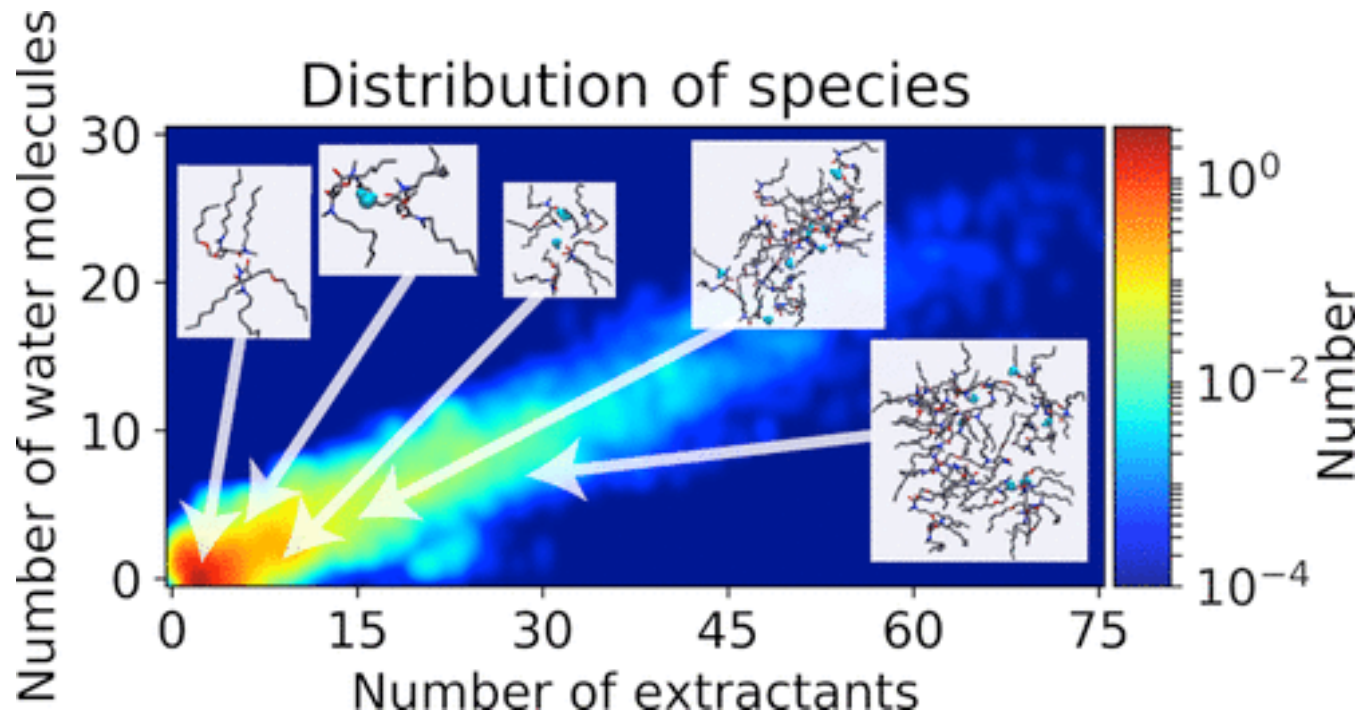
The transfer is driven by a difference in chemical potential

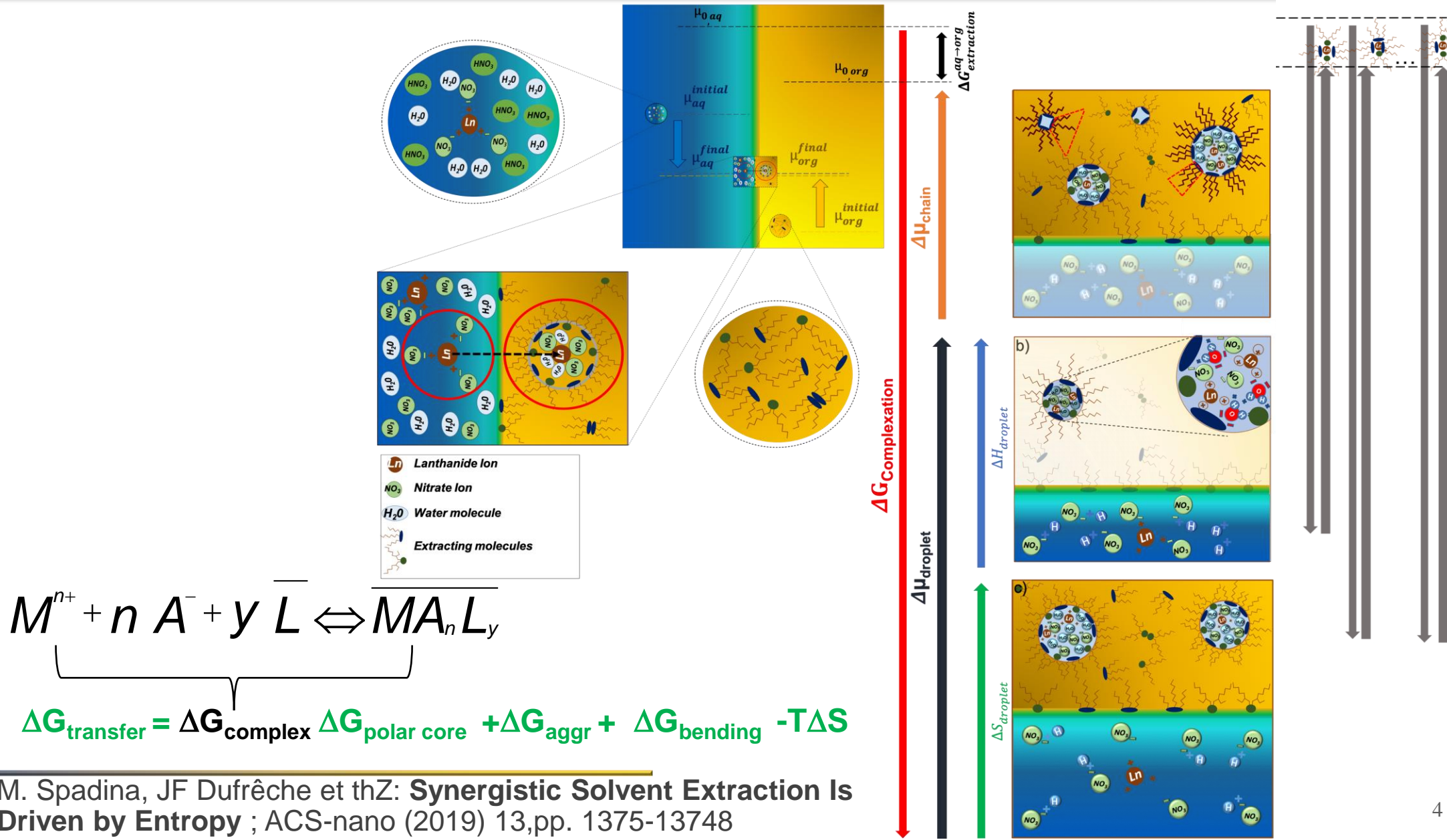


Through the « interphase » shown in green :

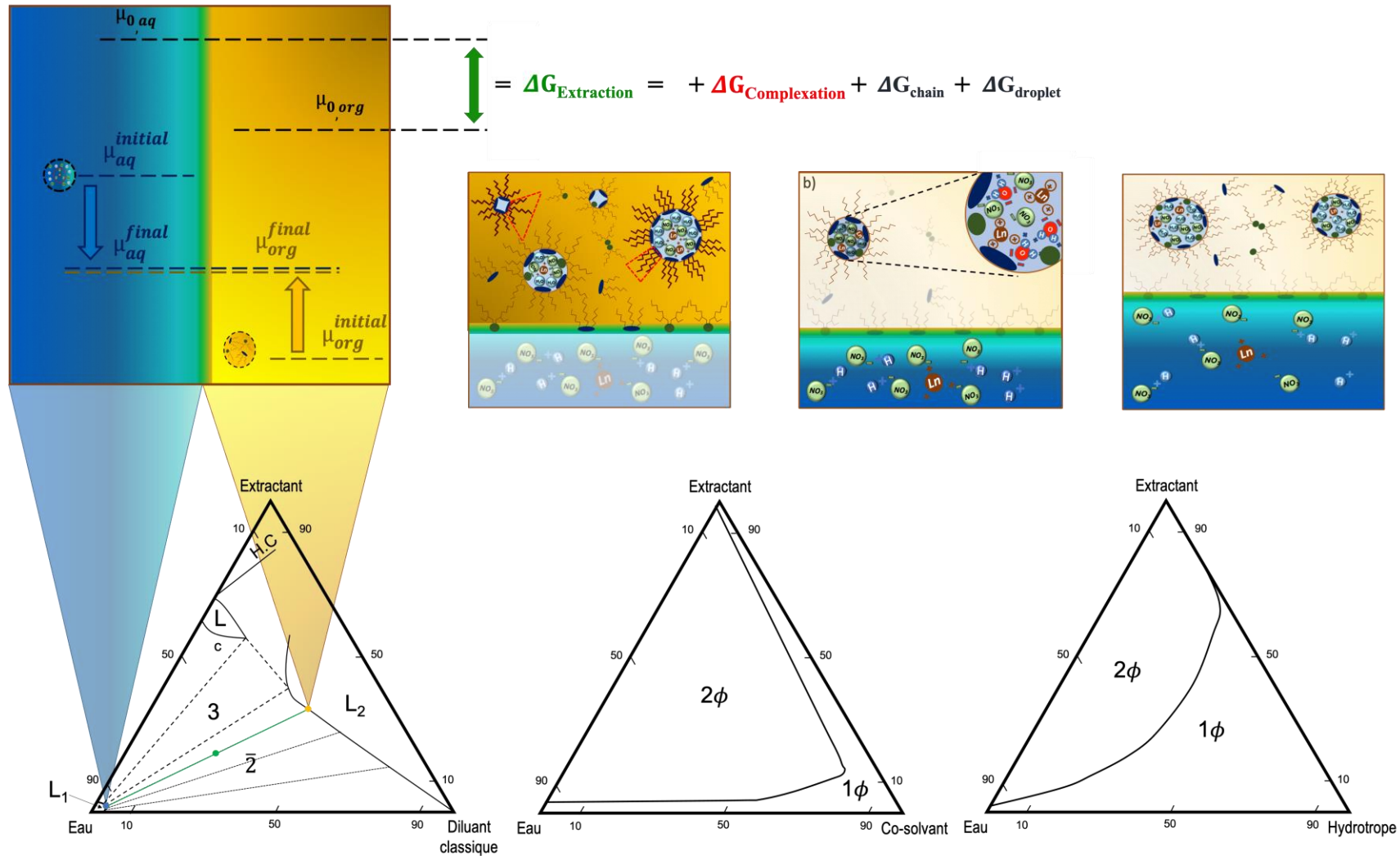


... the problem is that aggregates are not stoichiometric and diffuse

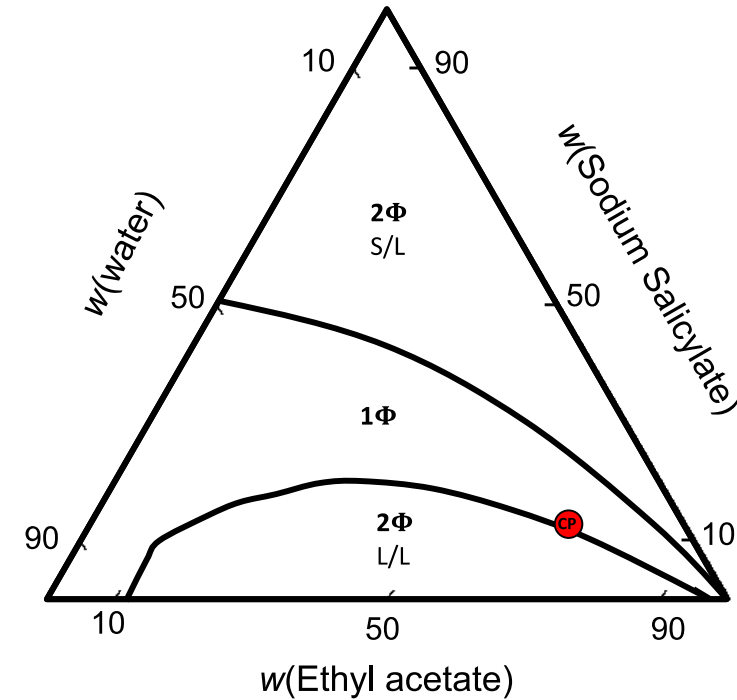
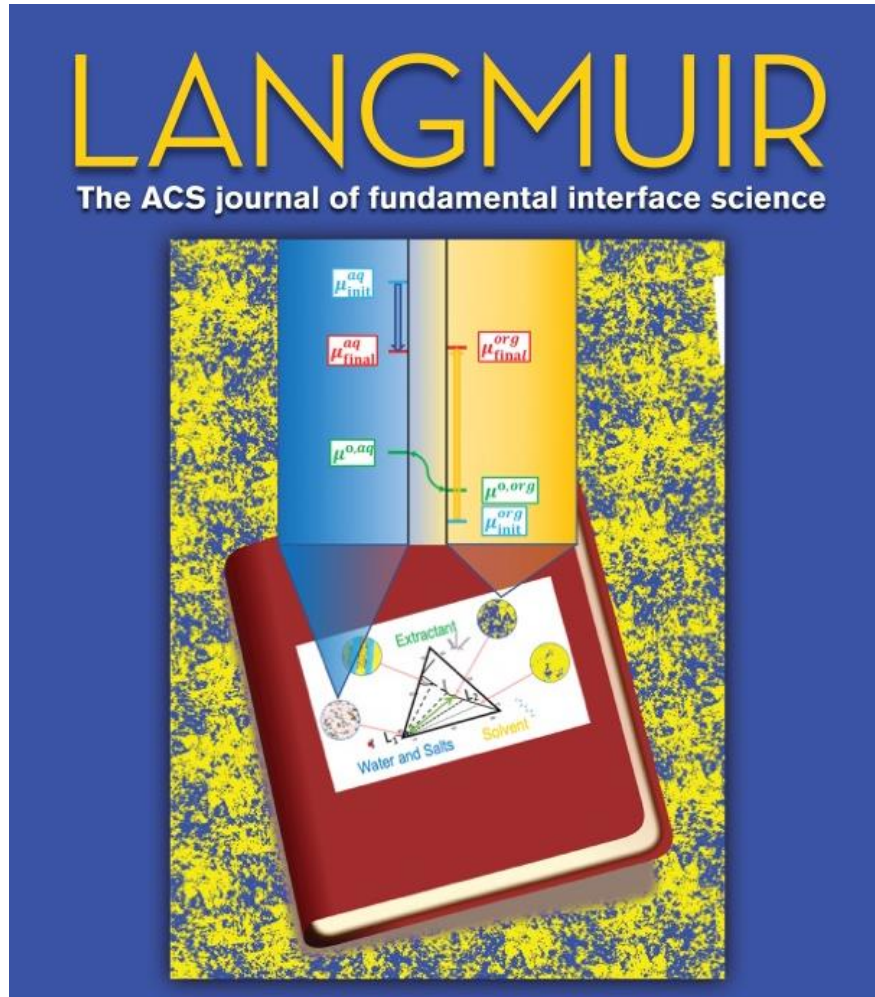




(supramolecular) colloidal scale (macroscopic)



Applies in the classical case : water plus salt / extraction/ solvent

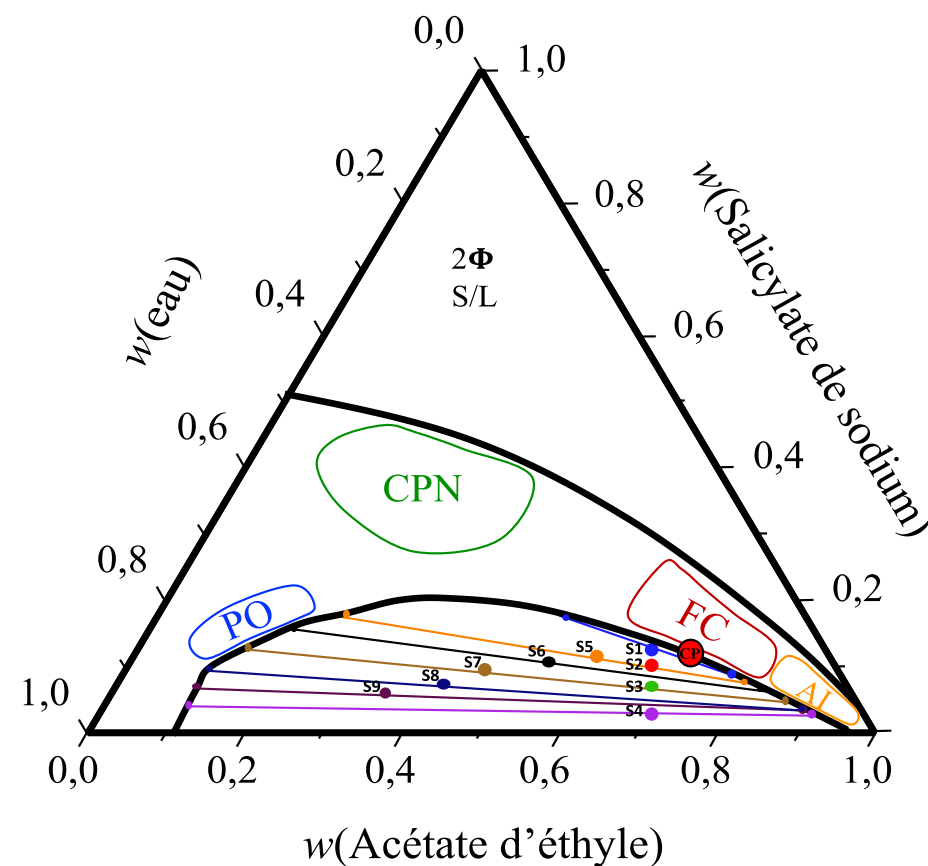
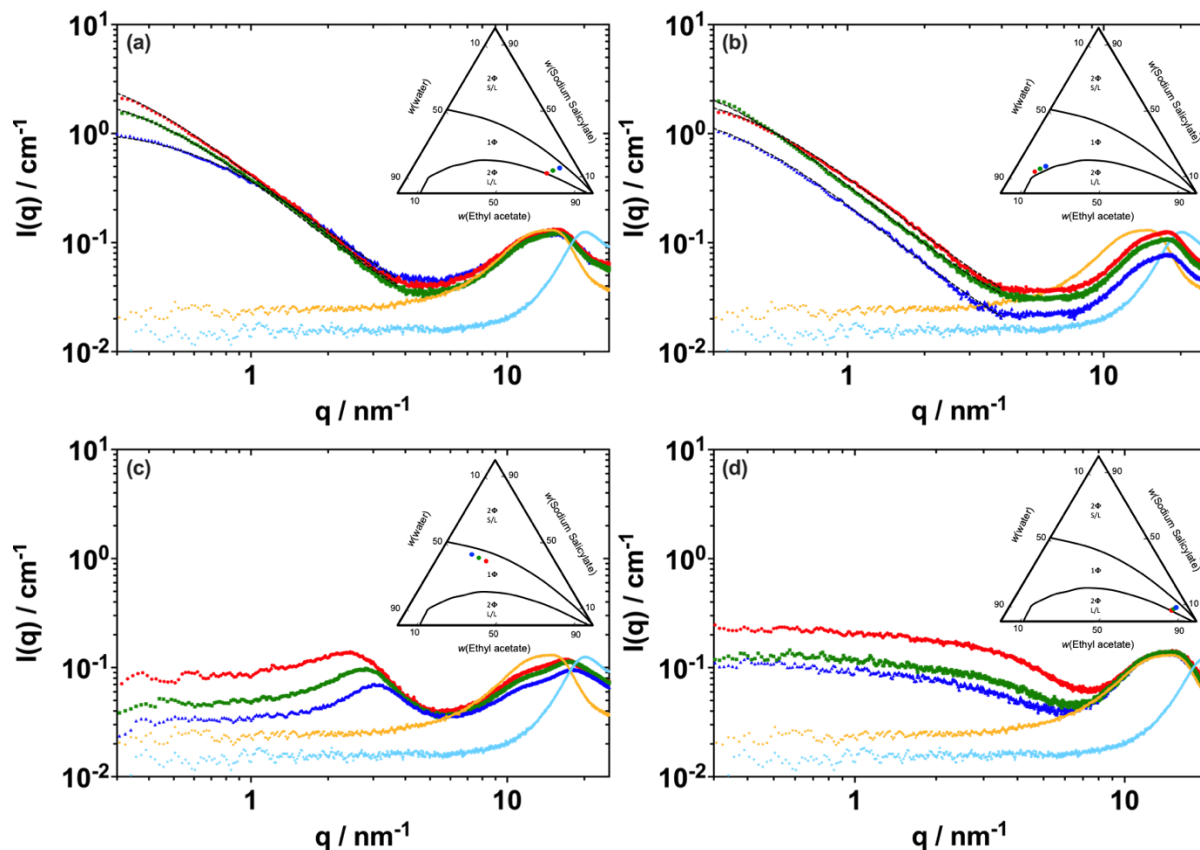


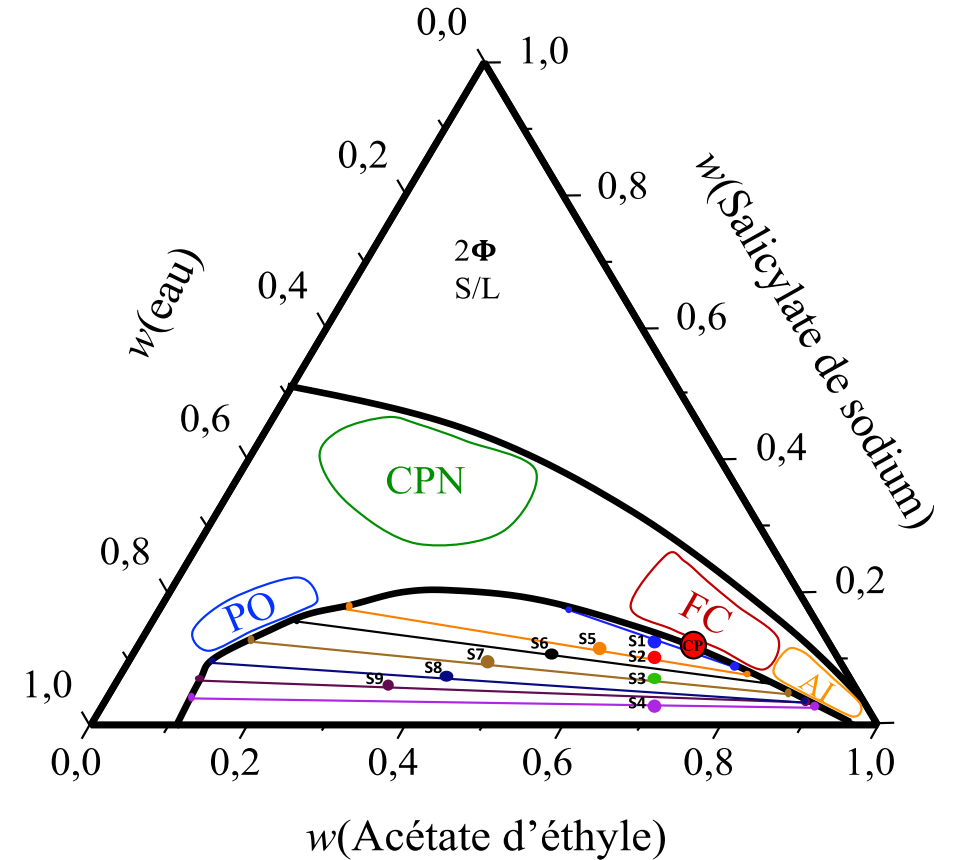
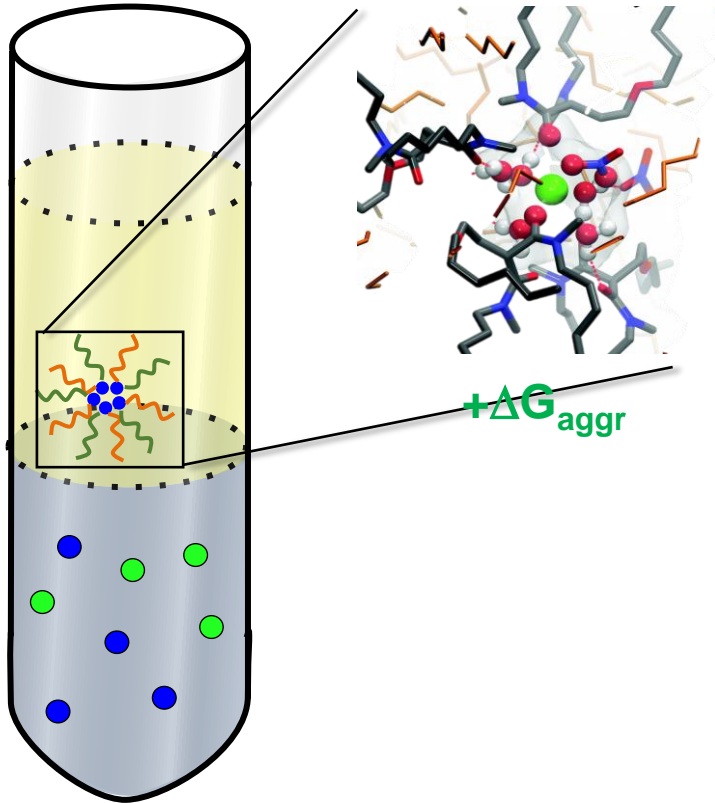
- Ioniques (tosylate de sodium), ATP, et non ionique : VOC, Pnp...
- Concentration hydrotropique minimale (MHC)
- MicroÉmulsions Ultra-Flexibles - UFME (pré-Ouzo)
- Ferment le trou de miscibilité sans formation de cristaux liquides (gels)

I- prepare ten "essays"



And identify the coexisting microstructures by by Small angle X-ray scattering (SAXS°)





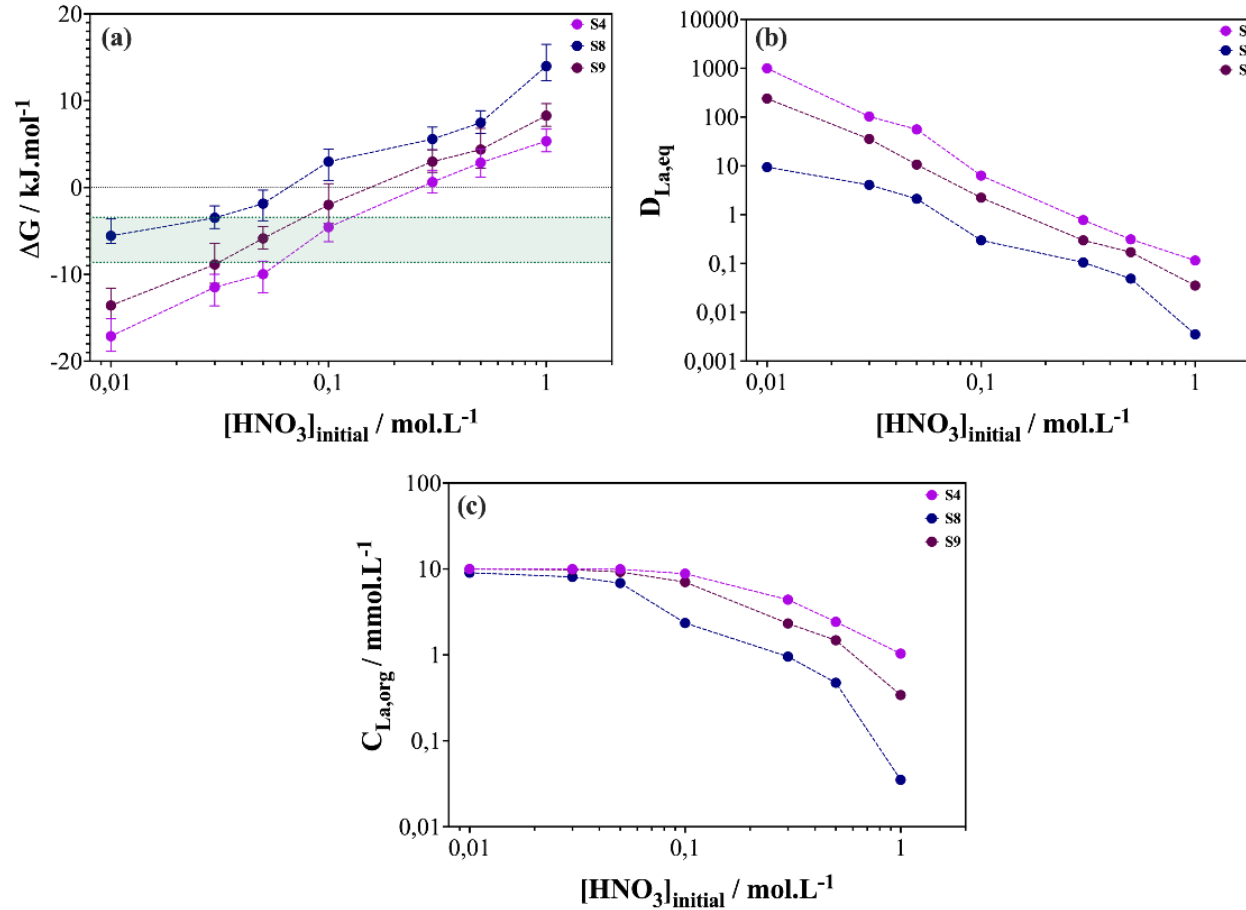
$$\Delta G_{transfer} = RT \cdot \ln (C_h/C_e) = \Delta H_{complex} - T\Delta S$$

$$\Delta G_{transfer} = \Delta G_{complex} + \Delta G_{polar\ core} + \Delta G_{aggr} + \Delta G_{bend}$$

Ila – Measure the effect of acidity



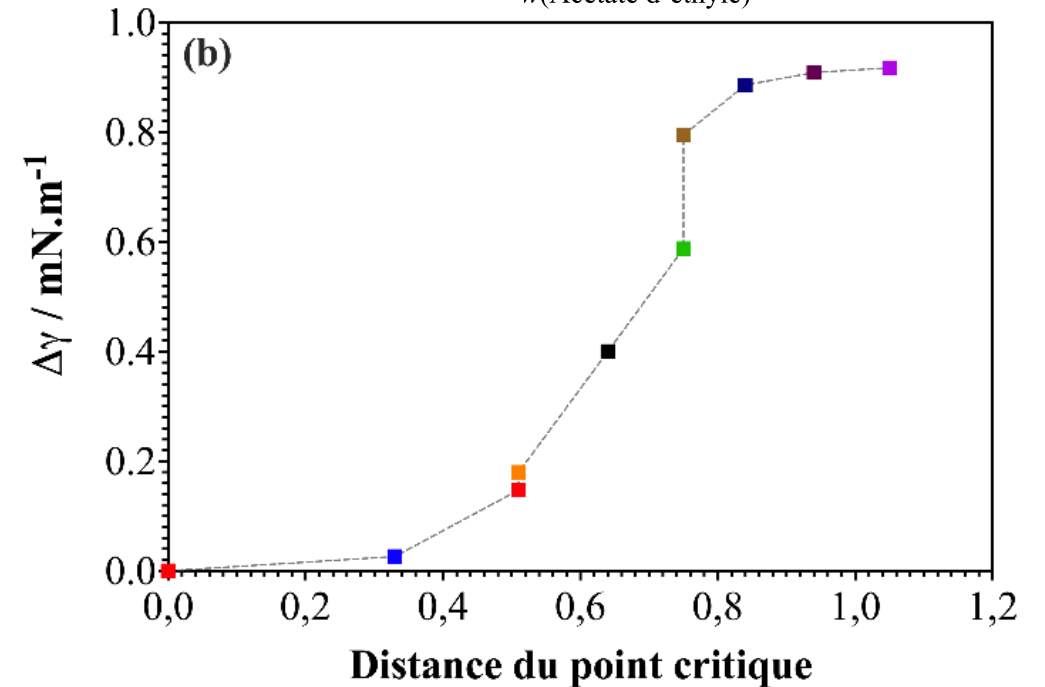
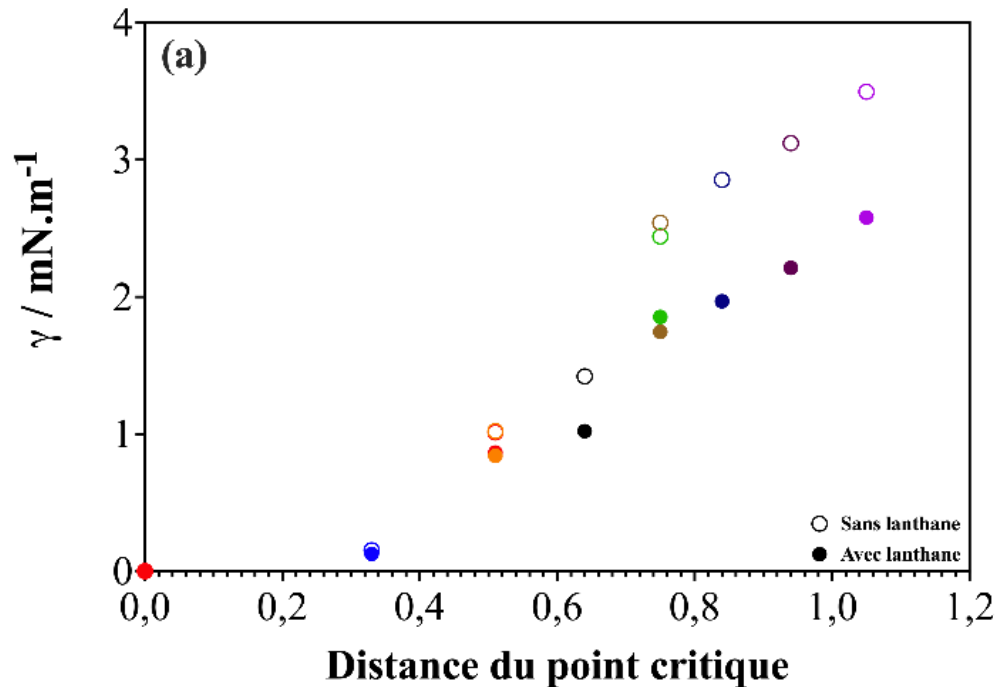
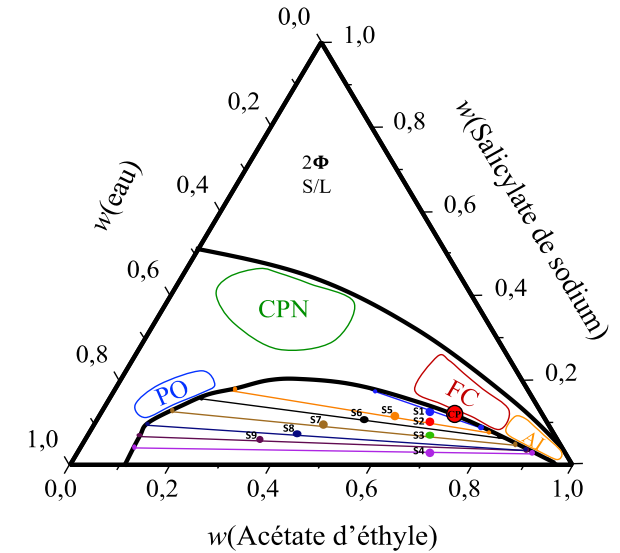
the ideal acidity domain is not modified (at first order)



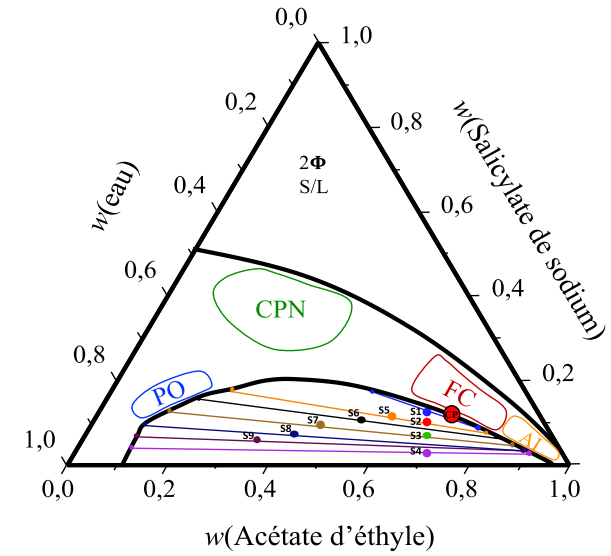
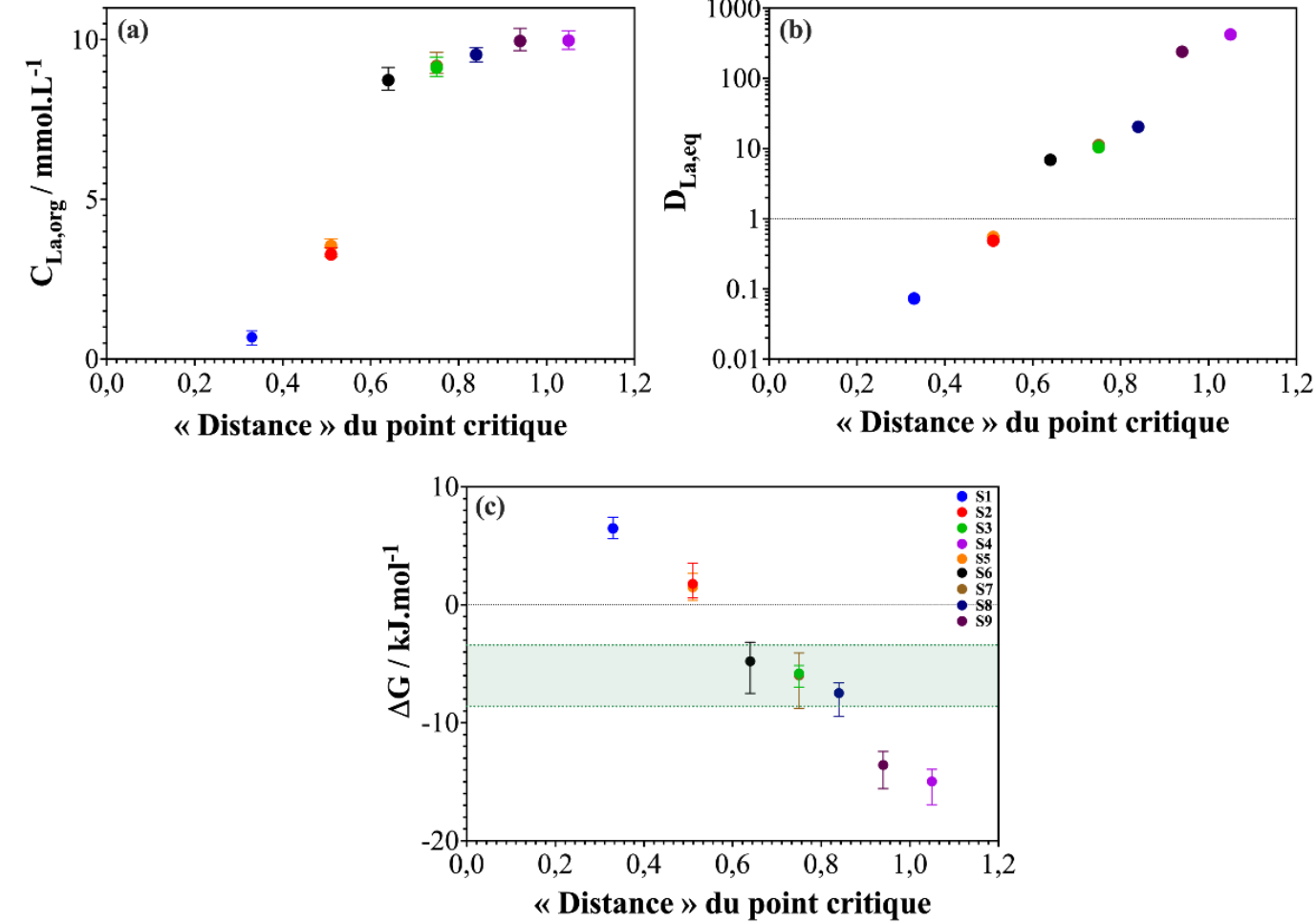
IIb – Measure surface tension between the two phases

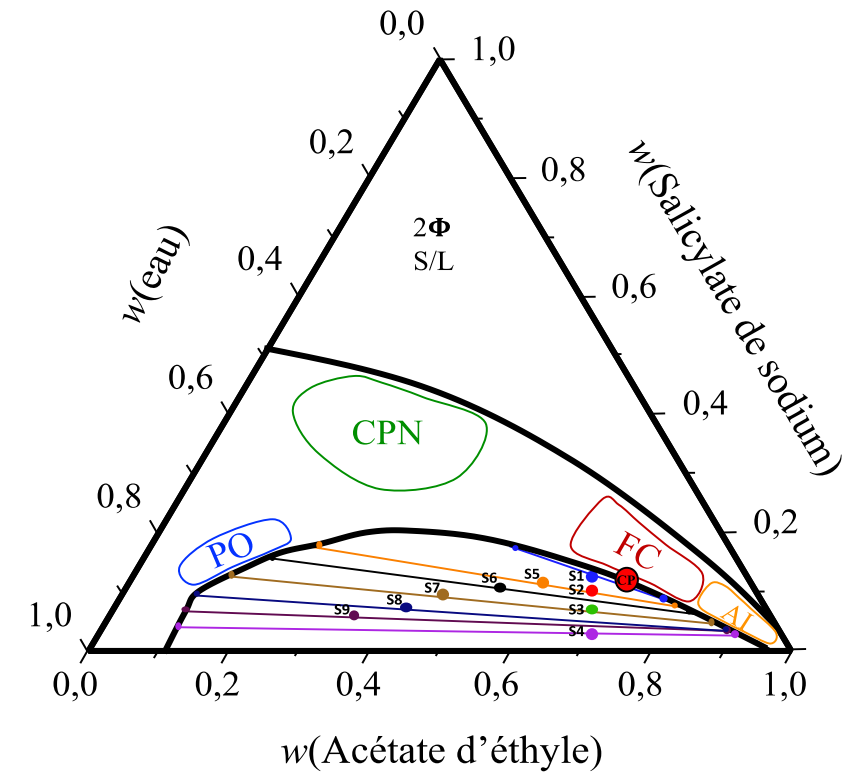
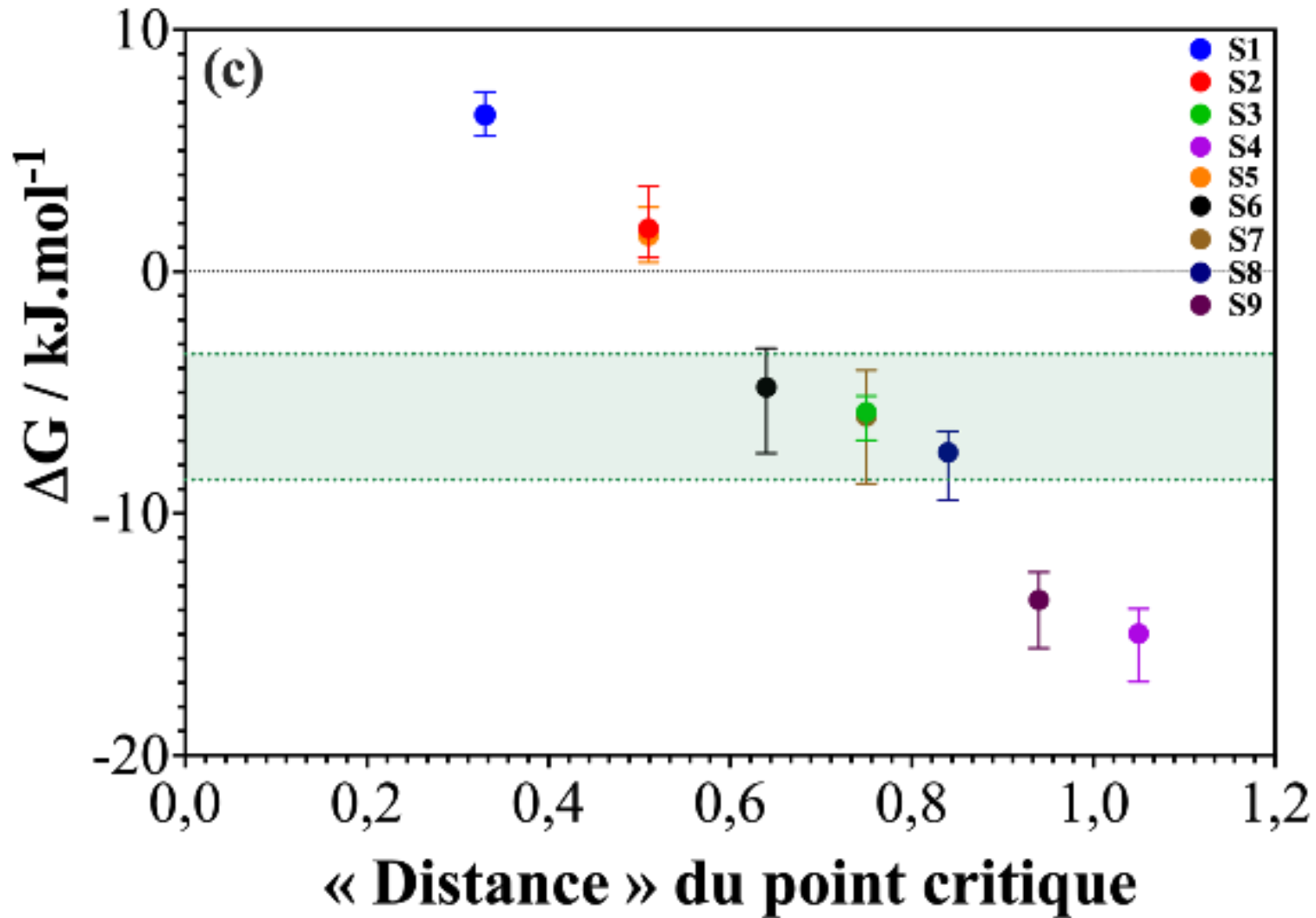


Measure the distribution coefficient:



Three different communities :

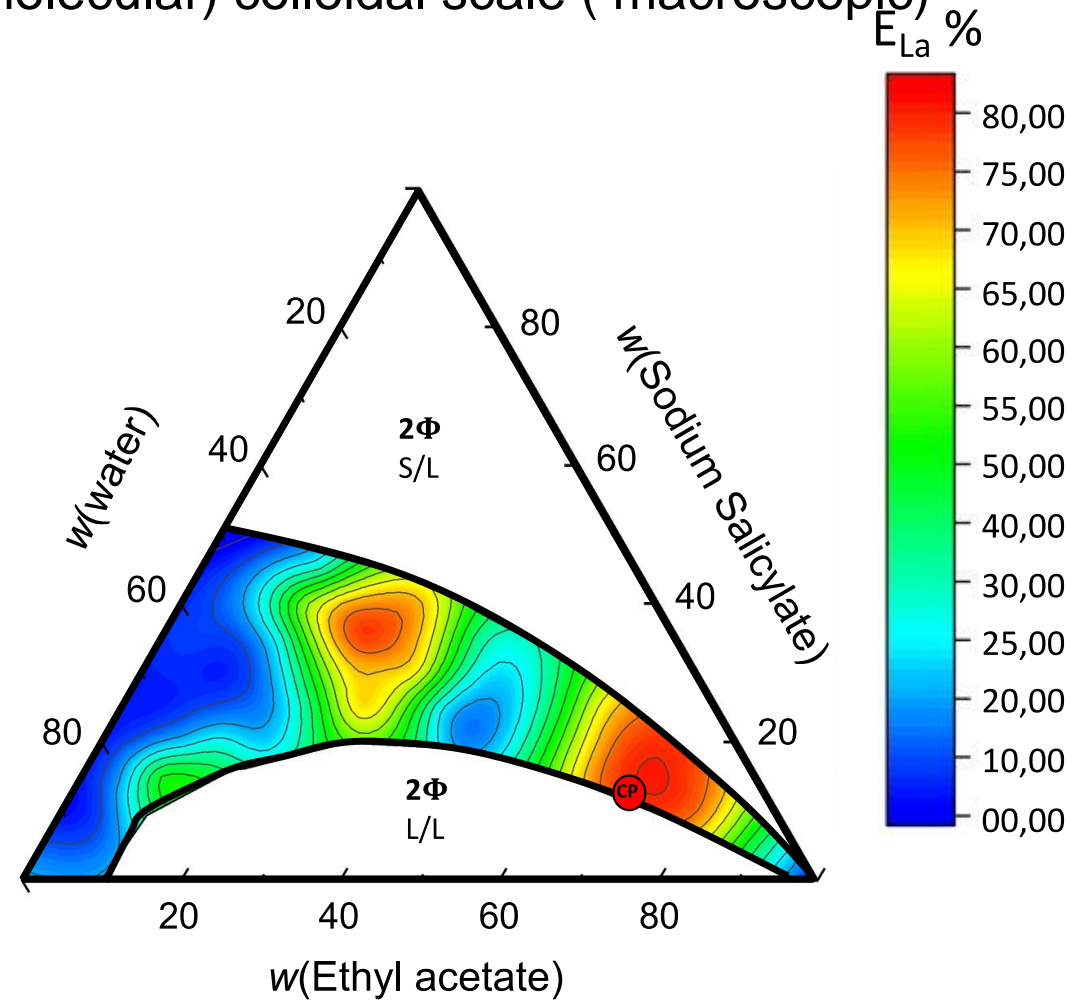




Solubilization map : useful for leaching



(supramolecular) colloidal scale (macroscopic)





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Werner Kunz

To go beyond publishing « tables of yields »:

- take into account not only complexation with nearset neighbour but also molecular forces (colloidal forces, L.R.I.).**
- do not forget the invisible (helping hand) of entropy in the aggregate as well as in the solvent**



More:

pHD: -SPOC « Recycling chemistry » INSTN/UM.

Engineers/scientist: video-lectures of the 1st Bernard Bigot school to be held in Cadarache July 2024 INSTN available from 08/2024

Décomposition inéaique de l'énergie libre de transfert

