Communication ☒ Oral
☐ Poster

MANIPULATING INTER-MICROGEL CROSS-LINKING AT INTERFACES AND EMULSION STABILITY THROUGH SIMPLE NANOIONS ADDITION

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Microgels are colloidal particles made of swollen polymeric network, whose softness imparts many original properties both in suspension and at interfaces. In particular, poly(N-isopropylacrylamide) (pNIPAM) microgels adsorb at fluid interfaces and were found to stabilize emulsions. [1] The stabilization effect is directly linked to their deformability at the interface, which has consequences on the interfacial elasticity of the drop surface.[2] Some of the polyoxometalates (POMs) belong to the class of superchaotropic ions, being able to coassemble with non-ionic systems, such as linear pNIPAM polymers.[3] In the present work, we are delving into the interactions between POMs and pNIPAM microgels, investigating how these interactions impact the microgels' ability to adsorb to fluid interfaces and finally to act as emulsion stabilizers. The concept is summarized in Figure 1. The presence of nanoions doesn't just alter the softness of the materials by acting as an internal physical cross-linker, but it also creates additional and reversible cross-linking effects between the microgels. Depending on the type of microgels and the pathway, the stability of emulsions could be enhanced or weakened[4].

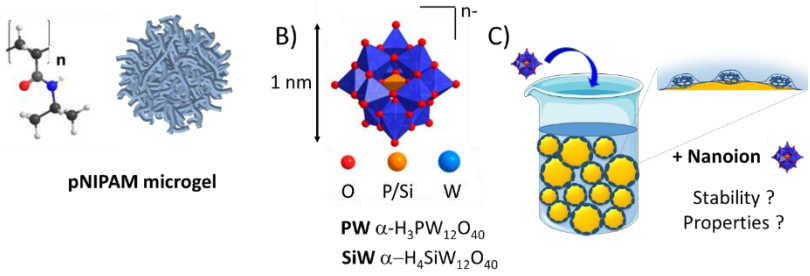

Figure 1. A) Chemical structure of pNIPAM microgels; B) Chemical structure of the α-Keggin-type POM nanoions; C) Schematic illustration of microgel-stabilized emulsion.

Références :

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2. M.-C. Tatry, E. Laurichesse, J. Vermant, V. Ravaine, V. Schmitt, *J. Colloid Interface Sci.* **2023**, 629, 288.
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