Supporting Information

Mesoporous Silica Colloids: Wetting, Surface Diffusion and Cationic Surfactant Adsorption

Elise Azar,[a,b] Christophe Blanc,[a] Ahmad Mehdi,[c] Maurizio Nobili[a] and Antonio Stocco[*a,b]

[a]Laboratoire Charles Coulomb (L2C), University of Montpellier, CNRS, Montpellier, France

[b]Institut Charles Sadron (ICS), University of Strasbourg, CNRS, Strasbourg, France

[c]Institut Charles Gerhardt (ICGM), University of Montpellier, CNRS, ENSCM, Montpellier, France

[*]stocco@unistra.fr, Telephone: +33 (0)388414113, Fax: +33 (0)388414099

Non-spherical mesoporous silica particles pore size distribution. In Figure S1 the pore size distribution determined by the Barrett, Joyner, Halend (BJH) method is shown for the adsorption and desorption branches for non-spherical mesoporous silica particles. The average pore diameter was evaluated as d = 7 nm.

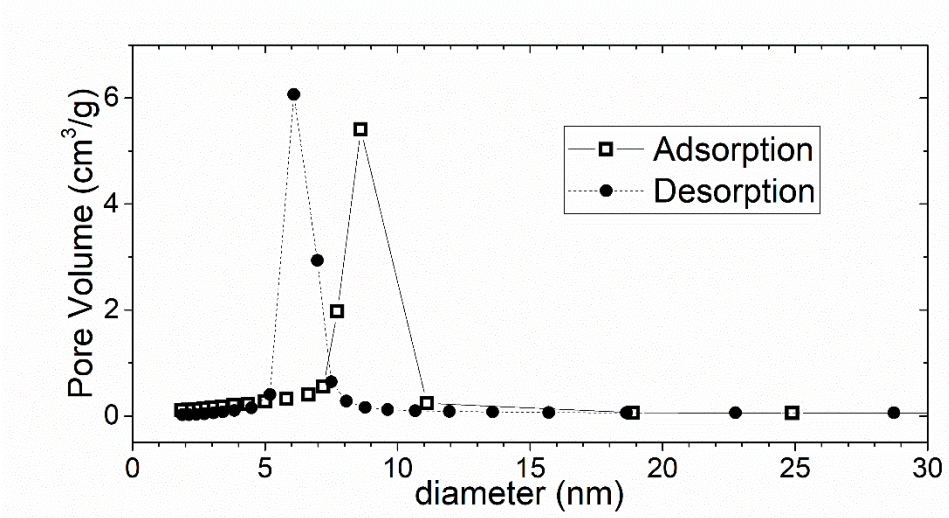

Figure S1. BJH pore-size distribution of non-spherical mesoporous SBA-15 calculated from adsorption and desorption branches.

Particle deposition protocols. In order to understand if the presence of particles both at the interface and in the volume play an important role for the adsorption of soluble surfactants, we compare two particle deposition protocols in Figure S2. Empty symbols show adsorption curves obtained when all porous particles are deposited only in the volume. Filled symbols show adsorption curves when particles are

present both at the interface and in the volume as described in the main text. Even if the ratio of particle numbers in the volume and at the surface is very high, a significant effect on surfactant adsorption can be seen in Figure S2. When particles are also at the surface the increase of the interfacial tension is always higher than when particles are only in the volume. It must be noted that the number of particles trapped at the interface remains constant in time as observed by optical microscopy and given the high adsorption energy of colloids at the fluid interface.[1]

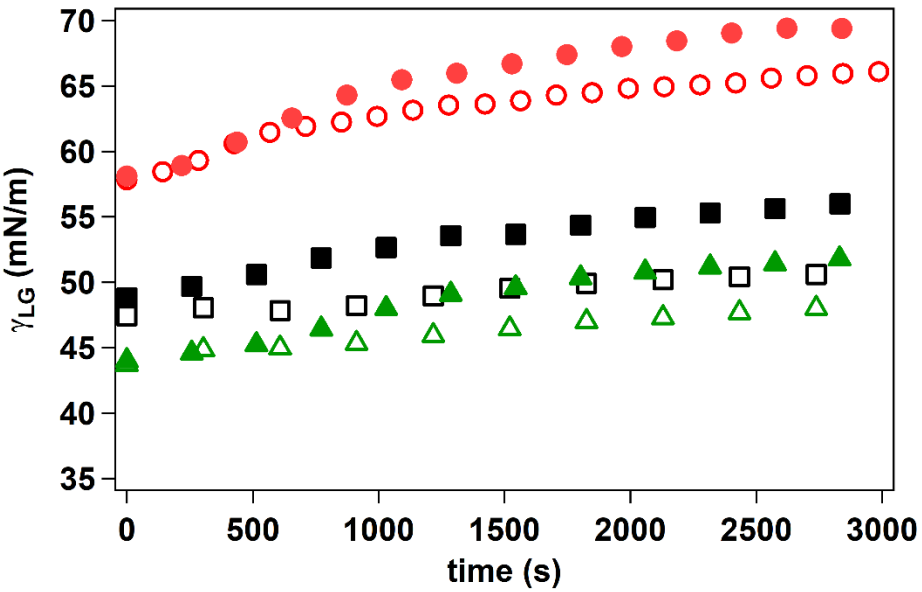

Figure S2. Interfacial tension experiments of CTA^+OH^- solutions in the presence of d = 7 nm porous particles deposited at the liquid-gas interface (filled symbols as in the main text) and in the bulk (empty symbols) at C = 0.25 mM (circles), 0.5 mM (squares) and 0.7 mM (triangles).

References

(1) Stocco, A.; Nobili, M. A Comparison between Liquid Drops and Solid Particles in Partial Wetting. *Adv. Colloid Interface Sci.* **2017**, *247*, 223–233.