Abstract Submitted
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From Non-equilibrium to Equilibrium: Micellar Kinetics seen by Time-resolved Small-angle Scattering REIDAR LUND, Department of Chemistry, University of Oslo — The kinetic pathways of self-assembled nanostructures are not fully understood. Time-resolved small-angle X-ray/neutron scattering (TR-SAXS/SANS) is powerful technique[1] that allows kinetics processes such as nucleation processes[2,3] and morphological transitions[4,5] to be followed with structural resolution over time scales starting from milliseconds. Neutrons offer the additional advantage of facile contrast variation through H/D substitution schemes, which also allow equilibrium processes such as molecular exchange and diffusion to be studied[1,6,7]. Here we will highlight the current capabilities of TR-SAS and show results on the kinetics of polymeric micelles. We will address how the understanding of kinetic pathways can be used control the nanostructure.

1. Lund, R.; Willner, L.; Richter, D. Adv Polym Sci. 2013, 259, 51–158.
2. Lund, R.; et al. Phys Rev Lett. 2009, 102, 188301.
3. Jensen, et al J. S. J. Am. Chem. Soc. 2013, 135, 7214–7222.
4. Lund, R. et al . ACS Macro Lett. 2013, 2, 1082–1087.
5. Jensen, et al Angew. Chem. Int. Ed. 2014, 53, 11524–11528.
6. Lund, R. et al Phys Rev Lett. 2006, 96, 068302.
7. S. H. Choi, et al Phys Rev Lett. 2010, 104, 47802.

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