Assembling Wormlike Micelles in Tubular Nanopores by Tuning Surfactant-Wall Interactions

Bhuvnesh Bharti¹, Mengjun Xue¹, Jens Meissner¹, Viviana Cristiglio² and Gerhard H Findenegg^{1,*}

¹ Technische Universität Berlin, Institut für Chemie, Stranski Laboratorium, TC 7, Strasse des 17. Juni 124, D-10623 Berlin, Germany

² Institut Laue Langevin, Large Scale Structures group, 6, rue Jules Horowitz, BP 156 F-38042, Grenoble, France.

* corresponding author, e-mail address: findenegg@chem.tu-berlin.de

Figure S1 Characterization of synthesized silica SBA-15: **(a)** Small Angle X-ray Scattering (SAXS) profiles on double logarithmic scale. The vertical lines (dotted) mark the position of the three Bragg reflections **(b)** BET plot of Nitrogen adsorption isotherm (inset). The specific surface area of the material was found to be 773 m²/g.

Figure S2 Lysine adsorption isotherm (25°C) at SBA-15 silica. The points are the measured experimental data and the solid line is fit according to *Langmuir* model.

Figure S3 (a) SANS curves from SBA-15 immersed in pure D₂O (blue squares) and in the contrast-matching H₂O/D₂O mixture (green hexagons); the positions of the three leading Bragg reflections are indicated by dotted vertical lines. (b) Scattering profile from SBA-15 in H₂O/D₂O with the surfactant C₁₂E₅ at relative filling $f = 0.95$ in the absence of lysine ($\theta = 0$): the black line represents a fit to the data points (circles), with the diffuse scattering contribution $I_{diff}(q)$ according Teubner-Strey model (green curve) and the Bragg scattering contribution $I_{Bragg}(q)$ according three independent Gaussians (see main text) indicated by the contour of the shaded areas.