Supplementary information

Anisotropic Mesoporous Silica/Microgel Core-Shell Responsive Particles

Julien Schmitt\textsuperscript{ab}, Caroline Hartwig\textsuperscript{a}, Jérôme J. Crassous\textsuperscript{ac}, Adriana M. Mihut\textsuperscript{a}, Peter Schurtenberger\textsuperscript{ad} and Viveka Alfredsson\textsuperscript{a}

\textsuperscript{a} Division of Physical Chemistry, Department of Chemistry, Lund University, 221 00 Lund, Sweden.
\textsuperscript{b} LSFC Laboratoire de Synthèse et Fonctionnalisation des Céramiques UMR 3080 CNRS / Saint-Gobain CREE, Saint-Gobain Research Provence, 550 avenue Alphonse Jauffret, Cavaillon, France
\textsuperscript{c} Institute of Physical Chemistry, RWTH Aachen University, 52074 Aachen, Germany.
\textsuperscript{d} Lund Institute of advanced Neutron and X-ray Science (LINXS), Lund University, Lund, Sweden.

Figure S1: SEM micrographs of silica (a) platelets, (b) primary particles and (c) rods from powder deposition on the stub.

![SEM micrographs of silica](image-url)
Figure S2: SEM micrographs of hybrid silica/PNIPAM (a) platelets, (b) primary particles and (c) rods from droplet deposition of a 0.2 wt% suspension on a glass coverslip then deposited on the stub. The black arrows highlight the PNIPAM bridges between particles.

Figure S3: SEM micrographs of hybrid silica/PNIPAM (a) platelets, (b) primary particles and (c) rods obtained after spin-coating of suspensions of particles at 0.01 wt% on a glass surface.
Figure S4: Cryo-TEM micrographs of hybrid silica/PNIPAM (a and b) platelets, (c and d) primary particles and (e and f) rods from dispersions at 0.2 wt% at 20°C.
**Figure S5:** Plot of $\Gamma$ versus $q^2$, with $\Gamma$ extracted using the second order cumulant analysis of the correlation function $g^1(\tau)$, obtained from DLS measurements at $50^\circ$ ($q=11.18$ µm$^{-1}$), $90^\circ$ ($q=18.70$ µm$^{-1}$) and $110^\circ$ ($q=21.67$ µm$^{-1}$) for hybrid silica/PNIPAM rods at 18°C. The fit in blue gives the translational diffusion coefficient $D_t$ (µm²s$^{-1}$) ($\Gamma = D_t q^2$)

**Video S1:** CLSM video of a suspension made of hybrid core-shell silica/PNIPAM rods at 2wt% and 25°C without electric field

**Video S2:** CLSM video of a suspension made of hybrid core-shell silica/PNIPAM rods at 2wt% and 25°C under an alternate electric field, with a field strength $E=50$ kV/m and
frequency $f=160$ kHz. The rods are aligned along the direction of the field, along the imaging plane.