Supplementary Information

Figure S1. $^1$H NMR of $P_2$

Figure S2. $^{13}$C NMR of $P_2$
**Figure S3.** $^{29}\text{Si}$ NMR of $P_2$

![Figure S3. $^{29}\text{Si}$ NMR of $P_2$](image1)

**Figure S4.** TEM images of fatty acid functionalised siloxane $P_{2a}$, $P_{3a}$, $P_{4a}$ in ethanol, that of $P_{1a}$ being shown in the manuscript. (Scale bars are indicated between brackets),

![Figure S4. TEM images of fatty acid functionalised siloxane $P_{2a}$, $P_{3a}$, $P_{4a}$ in ethanol, that of $P_{1a}$ being shown in the manuscript. (Scale bars are indicated between brackets)](image2)

**Figure S5.** TEM images of fatty acid functionalised siloxane $P_{2b}$, $P_{3b}$, $P_{4b}$ in heptane, that of $P_{1b}$ being shown in the manuscript. (Scale bars are indicated between brackets)
Figure S6. $^{13}$C CP MAS NMR of M2b.

Figure S7. $^{29}$Si CP MAS NMR of M2b.
Figure S8. TEM images of hybrid materials obtained from fatty acid functionalised siloxane P2a, P3a, P4a, in ethanol and acid conditions in presence of TEOS, that of M1a from P1a being shown in the manuscript (Scale bares are indicated between brackets)

Figure S9. TEM images of hybrid materials obtained from fatty acid functionalised siloxane P2a, P3a, P4a, in ethanol and basic conditions in presence of TEOS, that of M1b from P1a being shown in the manuscript (Scale bares are indicated between brackets)

Figure S10. TEM images of hybrid materials obtained from fatty acid functionalised siloxane P2b, P3b, P4b, in heptane and in presence of TEOS, that of M1c from P1b being shown in the manuscript (Scale bares are indicated between brackets)
Figure S11. SEM images of hybrid materials obtained from fatty acid functionalised siloxane P2a, P3a, P4a, in ethanol and acid conditions in presence of TEOS, that of M1a from P1a being shown in the manuscript (Scale bares are indicated between brackets)

Figure S12. SEM images of hybrid materials obtained from fatty acid functionalised siloxane P2a, P3a, P4a, in ethanol and basic conditions in presence of TEOS, that of M1b from P1a being shown in the manuscript (Scale bares are indicated between brackets)

Figure S13. SEM images of hybrid materials obtained from fatty acid functionalised siloxane P2b, P3b, P4b, in heptane and in presence of TEOS, that of M1c from P1b being shown in the manuscript (Scale bares are indicated between brackets)
Figure S14. Nitrogen adsorption desorption of hybrid materials prepared under basic conditions