# ESI: Nanogels with tailored hydrophobicity and their behavior at air/water interfaces

Ruiguang Cui[1, †], Maret Ickler[2, †], Johannes Harrer[2], Nicolas Vogel[2, *], Daniel Klinger[1, *]

[†] co-first authorship

[1] Freie Universität Berlin, Institute of Pharmacy, Königin-Luise-Str. 2-4, 14197 Berlin, Germany

[2] Friedrich-Alexander-Universität Erlangen-Nürnberg, Institute of Particle Technology 91058 Erlangen, Germany

* corresponding author: daniel.klinger@fu-berlin.de, nicolas.vogel@fau.de

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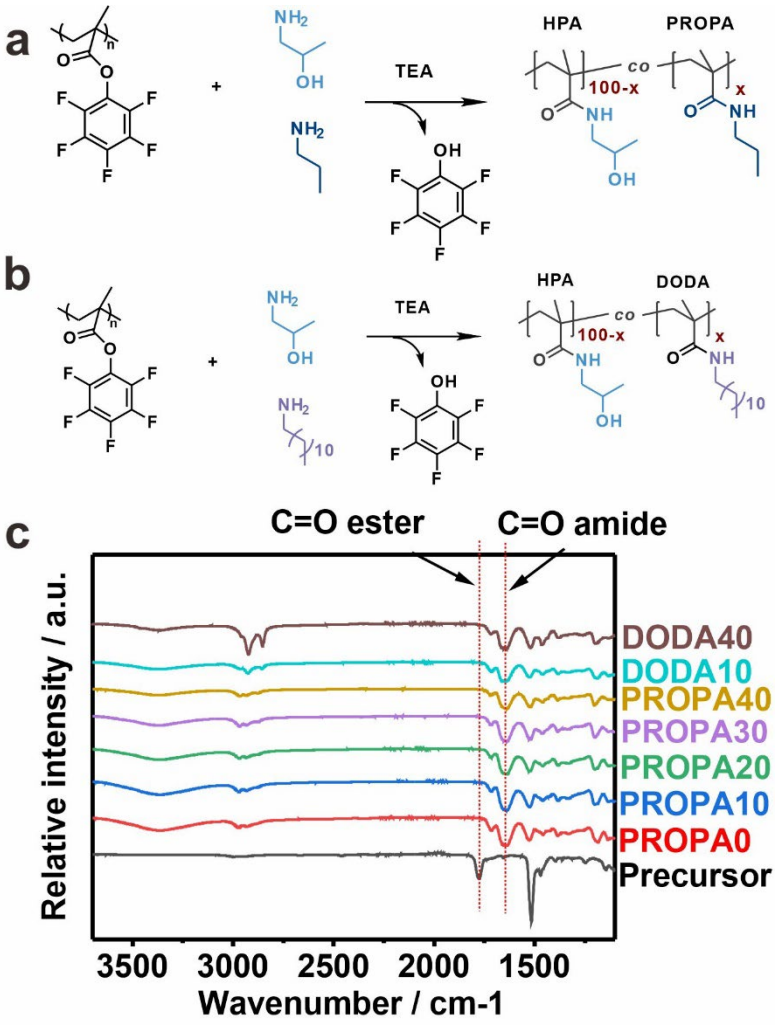


**Figure S1.** (a – b) Reaction scheme to prepare PROPA and DODA nanogels via post-functionalization of reactive ester precursor nanoparticles. (c) FT-IR spectra verify the complete conversion of reactive esters of the precursor particles to amide bonds of the functionalized particles.

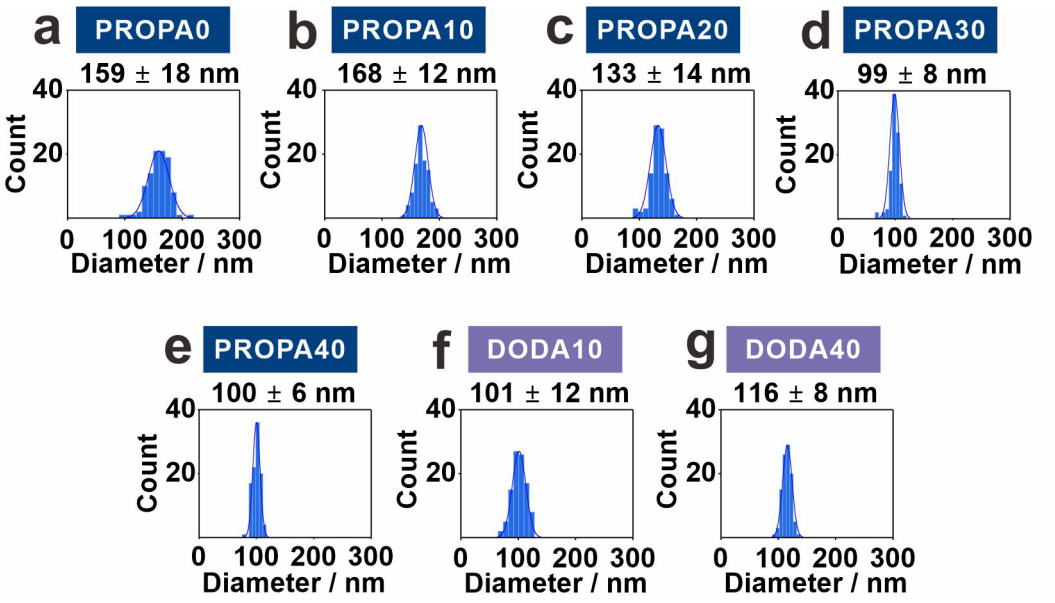


**Figure S2.** (a-e) Nanogel size distribution calculated from TEM images: PROPA0 to PROPA40, respectively; (f) DODA10 and (g) DODA40.

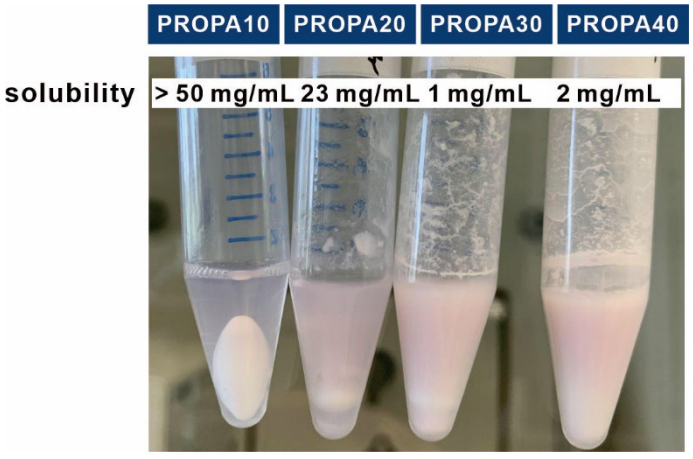


**Figure S3.** Solubility differences of PROPA10 to PROPA40 polymers verify their hydrophobicity differences.

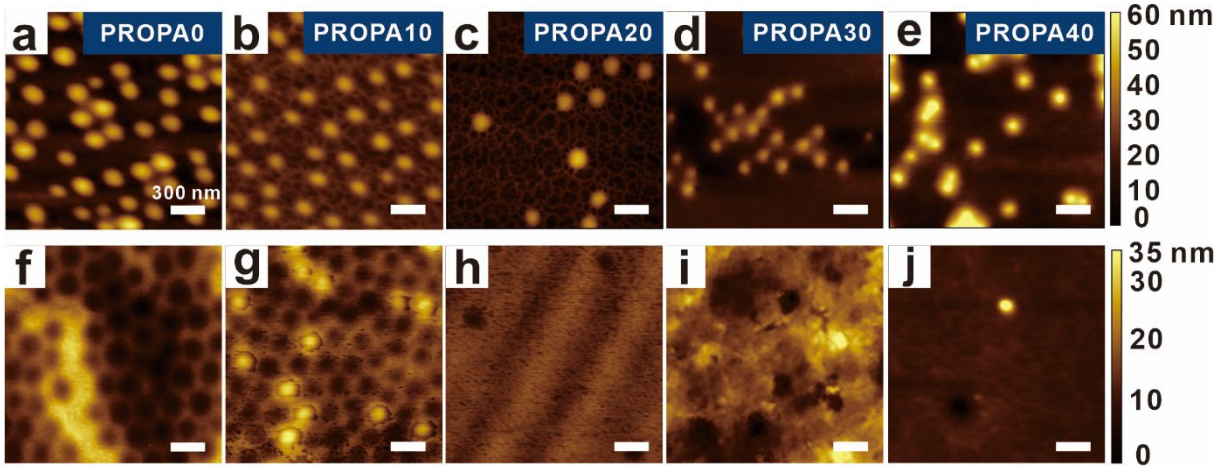


**Figure S4.** (a – e) AFM height images of PROPA0 – PROPA40 nanogel on PDMA gel matrices, indicating the protrusion of nanogels in the water phase. (f – j) AFM height images of cavities after removing the PROPA0 – PROPA40 nanogel from the PDMA gel matrices, indicating the protrusion of nanogels in the air phase. The scale bars are 300 nm for all images.

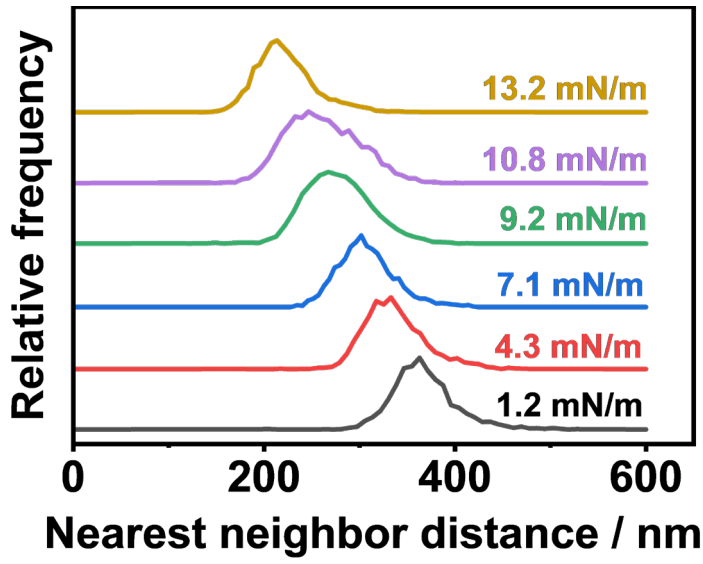


**Figure S5.** Nearest neighbor distance (NND) distribution of PROPA0 nanogels with increasing surface pressure, showing a continuous transition towards smaller interparticle distances.

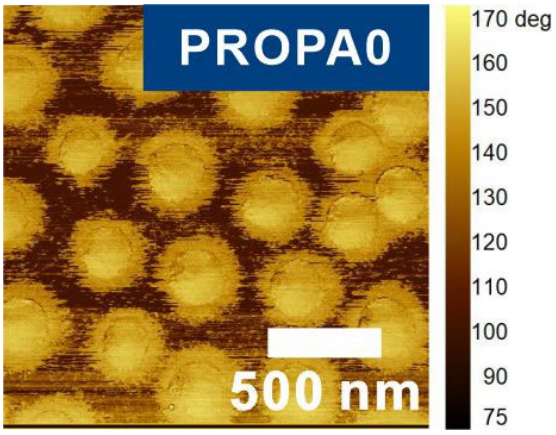


**Figure S6.** AFM phase image of PROPA0 which shows a thin corona after deposited on a solid substrate from the air/water interface.

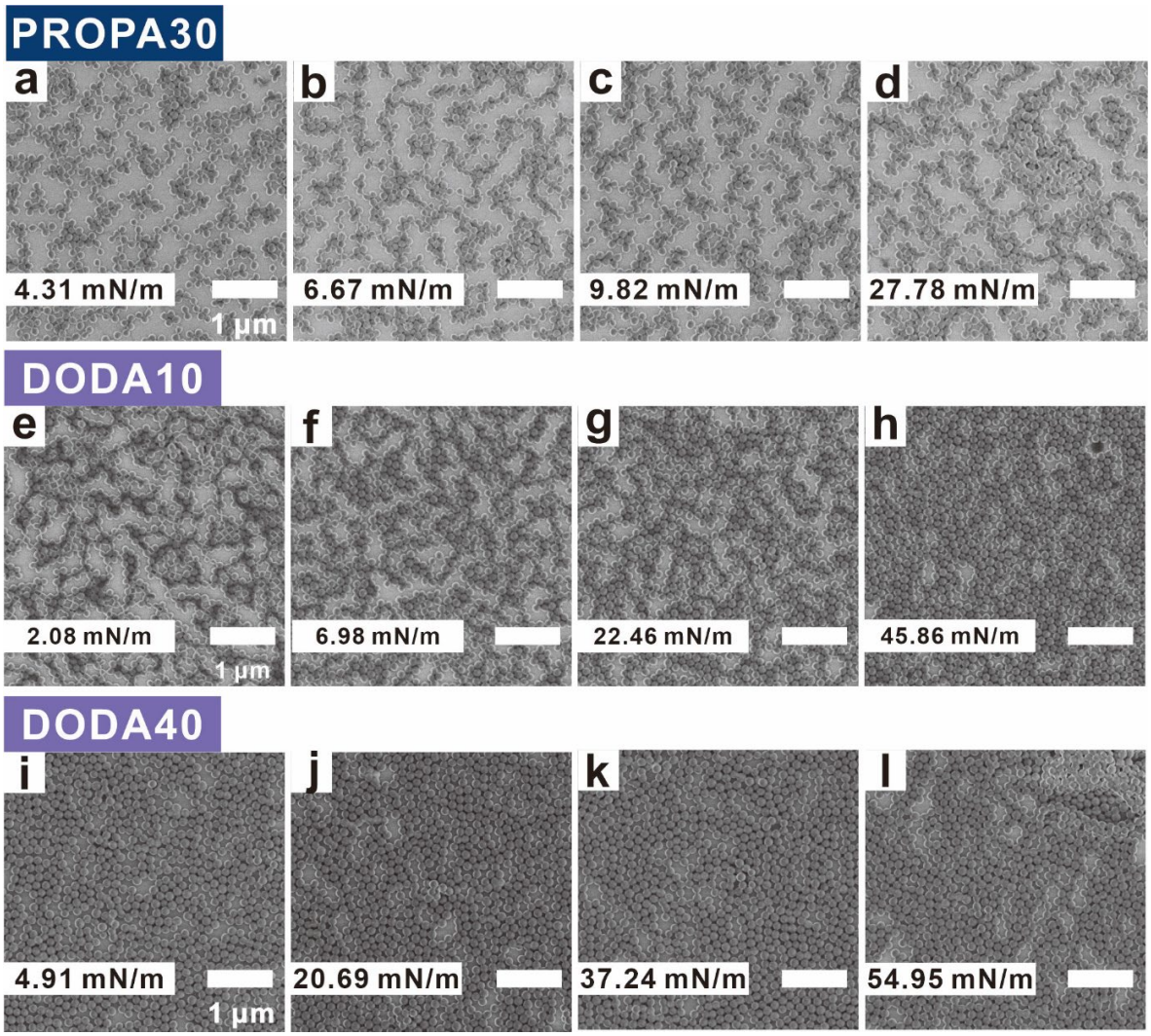


**Figure S7.** SEM images of nanogels transferred to silicon water from air/water interface under various surface pressure: (a – d) PROPA30, (e – h) DODA10 and (I – l ) DODA40.