Supporting Information

Cellulose-based slippery covalently attached liquids surfaces for synergistic rain and solar energy harvesting

Zhixiang Chen [a, b, *], *Yi Lu,* [b, d], *Rogerio Manica* [b], *Jingqiao Li* [a], *Qingxia Liu* [a,b,c]

[a] Ju Long College, Shenzhen Technology University, Shenzhen 518118, P. R. China

[b] Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB T6G 1H9, Canada

[c] College of New Materials and New Energies, Shenzhen Technology University, Shenzhen 518118, P. R. China

[d] Bioproducts Institute, Department of Chemical and Biological Engineering, University of British Columbia, 2360, East Mall, Vancouver, BC V6T 1Z3, Canada

Corresponding author: Prof. Zhixiang Chen

Email: chenzhixiang@sztu.edu.cn

Address: Ju Long College, Shenzhen Technology University, Shenzhen 518118, P. R. China

Figures

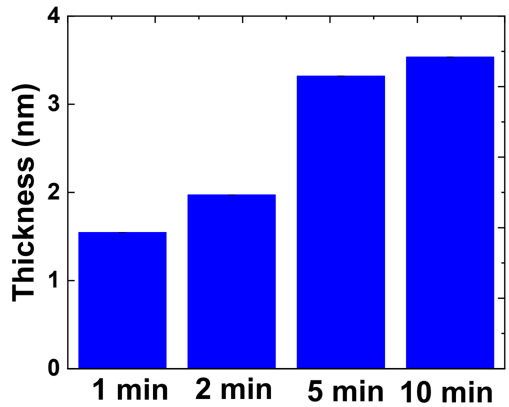

Fig. S1. PDMS layer thickness under different treatment time

Table

Table S1 Thickness, Transmittance (at 550 nm) and Tensile Properties for CAF, PDMS@CAF

	Thickness (um)	Transmittance at 550 nm	Young Modulus (MPa)	Tensile stress at break (MPa)	Tensile strain at break (%)
CAF	196 ±7	87	2.1 ±0.4	56.2 ±9.2	80.63 ±7.7
PDMS@CAF	196 ±7	92	2.1 ±0.2	57.4 ±8.0	78.35 ±8.9

Method

Method S1[1]

The samples were horizontally placed in a Petri dish with a quartz cover. Approximately 20 μL cm^{-2} of silicone (PDMS) oil was then dropped to cover the entire sample surface and uniform coverage was achieved by tilting the sample. The samples were illuminated by UV (Hg) lamp at 400 W (Noblelight DQ2523, Heraeus, Germany). The emission maxima of this lamp are in the UV range, that is, $\lambda = 320$ and 370 nm. The working distance between the lamp and the sample was 15 cm. The UV light power density was measured using a 1830-C Newport optical power meter equipped with a 818-UV/DB optical power detector and 1% Newport ND filter. The power density at the working distance is ≈50 mW cm^{-2}. To measure the WCA and hysteresis on UV-grafted PDMS layers, the remnant oil was dissolved by extensive rinsing in toluene, and then dried under a stream of N_2.

References

[1] A.B. Tesler, L.H. Prado, M.M. Khusniyarov, I. Thievessen, A. Mazare, L. Fischer, S. Virtanen, W.H. Goldmann, P. Schmuki, A one-pot universal approach to fabricate lubricant-infused slippery surfaces on solid substrates, Advanced Functional Materials 31(27) (2021) 2101090.