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Long-lived Multifunctional Superhydrophobic Heterostructure via Molecular Self-supply YONGFENG HUANG, SHENG MENG, Institute of Physics, Chinese Academy of Sciences, INSTITUTE OF PHYSICS, CHINESE ACADEMY OF SCIENCES TEAM — Superhydrophobic (SHO) surfaces with a large contact angle ($\geq$150) and low sliding angle ($<$10) are highly desirable in both fundamental science and myriad applications. Current approaches to fabricate such surfaces require calcinating at high temperatures, tedious and time-consuming treatments, toxic chemicals, and/or processing with intricate instruments. Long-duration SHO surfaces are even more challenging due to easy contamination by organic pollutants in dry conditions. To overcome these difficulties we design a simple approach via self-supplying of low surface tension chemicals to nanoparticles to fabricate multifunctional SHO heterostructures. Our method features room temperature, rapid processing, with environment-friendly raw materials. With multiple functions such as photocatalysis and transparency SHO surfaces extend their lifetime and enable self-sustaining environment maintenance.

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