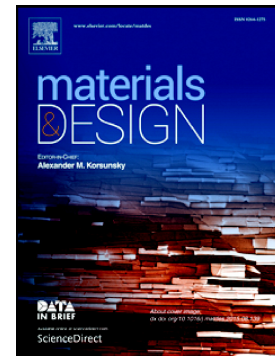


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# **Design and fabrication of robust, rapid self-healable, superamphiphobic coatings by a liquid-repellent “glue + particles” approach**

*Hao Zhang, Jiaojun Tan, Yibin Liu, Chunping Hou, Yong Ma, Junwei Gu, Baoliang Zhang, Hepeng Zhang, and Qiuyu Zhang<sup>\*,†</sup>*

Key Laboratory of Applied Physics and Chemistry in Space of Ministry of Education, Northwestern Polytechnical University, Xi'an, 710072, P. R. China.

<sup>†</sup>Research Institute of Northwestern Polytechnical University in Shenzhen, 518057, P. R. China

Keywords: superamphiphobic; robust; self-healable; thiol-ene; liquid-repellent glue.

Abstract: The “glue + particles” approach has presented an excellent idea for promoting the practicability of superamphiphobic surfaces. However, strong polar materials, such as epoxy and polyurethane, are usually employed as adhesives. The superamphiphobic behavior will be immediately lost when parts of superhydrophobic particles are removed. Thus, a glue with robust self-healing liquid-repellence is desirable, but remains challenging to realize. Herein, a robust, self-healable, superamphiphobic film was fabricated by a liquid-repellent “glue + particles” approach. The coating based on a sol-gel network showed exceptional liquid-repellency to low surface tension liquids including ethanol. The designed coating is based on robust sol-gel network dangling fluoroalkyl chains which integrates the bonding and self-healing mechanisms for providing a longer usage life. It could withstand at least 400 cycles of abrasion under severe stress

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