# Supporting Information

## A Novel Mussel-Inspired Strategy toward Superhydrophobic Surface for Self-Driven Crude Oil Spill Cleanup

Zhenxing Wang,[a] Yanchao Xu,[a] Yuyan Liu, [a] and Lu Shao*[a]

[a] *School of Chemical Engineering and Technology, State Key Laboratory of Urban Water Resource and Environment (SKLUWRE), Harbin Institute of Technology, Harbin 150001, PR China.*

* E-mail address of corresponding author:

*Prof. L. Shao E-mail: shaolu@hit.edu.cn

## 1. The influence of the concentration of FA.

Formation and collection of nanoparticles (NPs): Dopamine hydrochloride (DA, 0.2 g) and different amount of folic acid (FA, 0 g, 0.1 g and 0.2 g) were added into deionized water (100 mL) and stirred for 18 h at 60 $^{o}$C (**Stage I**). Then the pH of the mixture was tuned to 8.5 by HCl-Tris followed by stirring for 12 h at room temperature (**Stage II**). Finally, those nanoparticles formed in different solutions were thoroughly washed and then collected by centrifugation, and dried at 50$^{o}$C until the weight is constant. The weight of those nanoparticles was recorded respectively for comparison.

**Table S1** Weight of nanoparticles (NPs) collected from DA solution and DA/FA solution with different amount of FA.

| Nanoparticles (NPs) | DA (mg mL$^{-1}$) | FA (mg mL$^{-1}$) | Stage I (h) | Stage II (pH) | Weight of NPs (mg) |
|---|---|---|---|---|---|
| NPs-0 | 2 | 0 | 18 | pH=8.5 | 78 |
| NPs-1 | | 0.5 | | | 65 |
| NPs-2 | | 1 | | | 52 |
| NPs-3 | | 2 | | | 28 |

## 2. Characterization of the NPs-0 and NPs-2

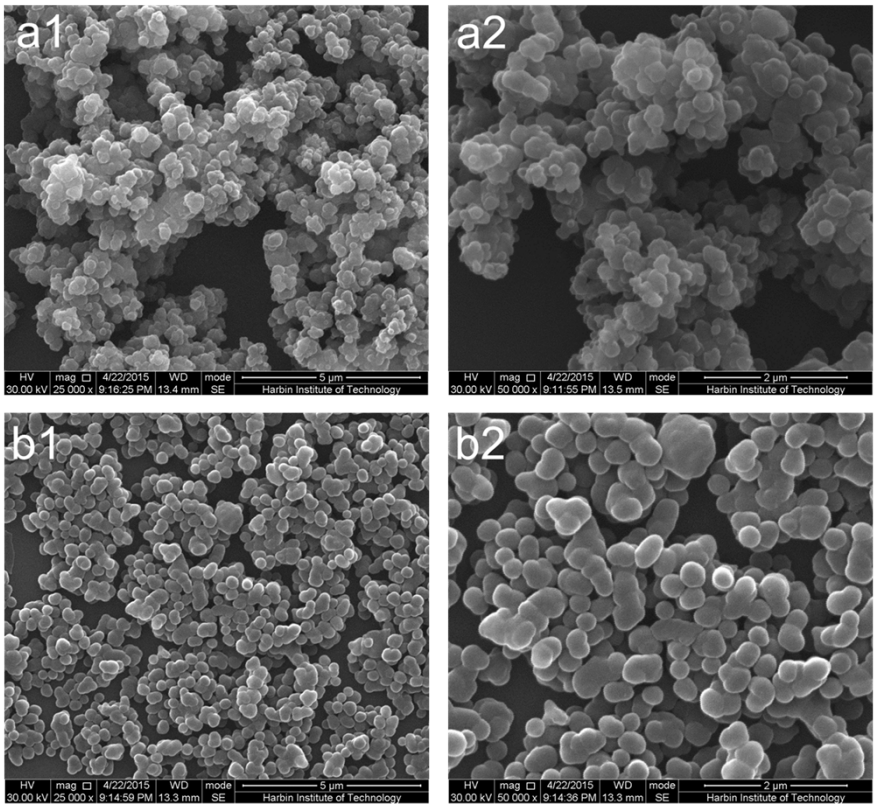


**Fig. S1** SEM images of (a) NPs-0 and (b) NPs-2. (1-Low magnification; 2-High magnification. The detailed formation conditions of these nanoparticles have been shown in Table S1.)

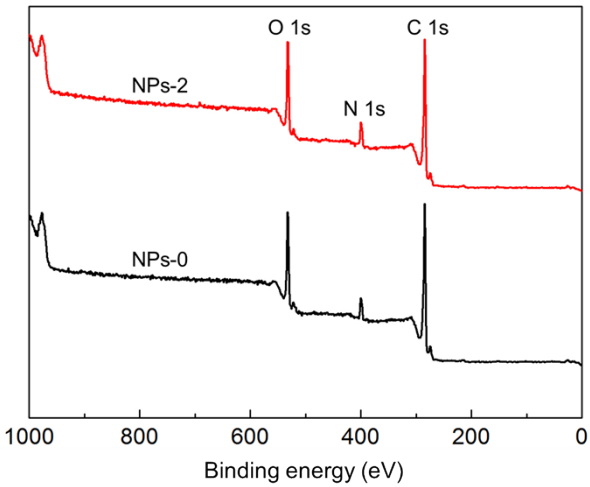


**Fig. S2** XPS spectra of (a) NPs-0 and (b) NPs-2. (The detailed formation conditions of these nanoparticles have been shown in Table S1.)

**Table S2** Elemental compositions of (a) NPs-0 and (b) NPs-2.

| Nanoparticles (NPs) | Composition (At.%) | | | |
|---|---|---|---|---|
| | C | N | O | N/C |
| **NPs-0** | **73.8** | **6.8** | **18.4** | **0.09** |
| **NPs-2** | **72.6** | **7.7** | **19.7** | **0.11** |

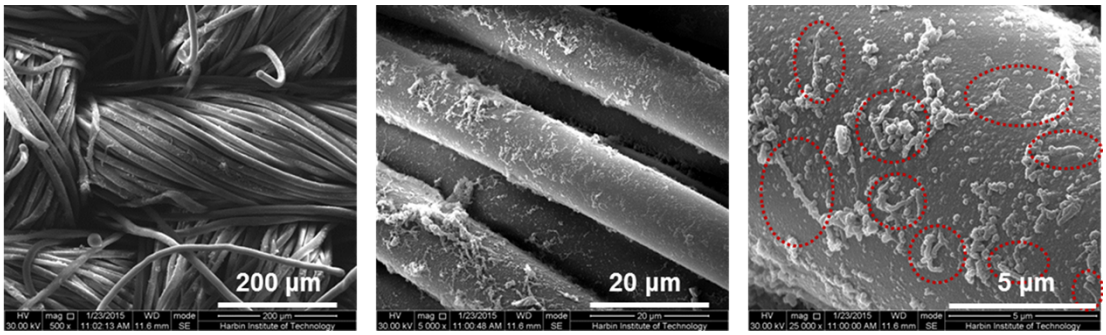


**Fig. S3** SEM images of the fabric treated by DA/FA solution. The duration of Stage I is 18h. (The modification process of the fabric is same to that used to prepare Fabric-4, excepting the concentration of DA and FA. The concentration of DA and FA is 1 mg $mL^{-1}$ and 0.5 mg $mL^{-1}$, respectively.)

## 3. Water contact angle of the pristine fabric

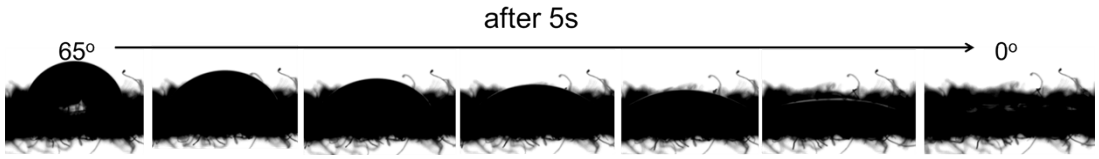


**Fig. S4** Change of the water contact angle of the pristine fabric with the drop ages.

As shown in Fig.S5, the water contact angle of the pristine fabric (Fabric-0) is about 65°, and the water droplet can easily permeate into the pristine fabric in 5s.