SUPPLEMENTARY MATERIALS

Removal of Oil Droplets from Contaminated Water Using Magnetic Carbon Nanotubes

by

Haitao Wang,^a Kun-Yi Lin,^a Benxin Jing,^b Galyna Krylova,^c Ginger E. Sigmon,^a Paul McGinn,^b Yingxi Zhu,^b and Chongzheng Na^{a,*}

^aDepartment of Civil Engineering and Geological Sciences, University of Notre Dame, 156 Fitzpatrick Hall, Notre Dame, IN, USA 46556

^bDepartment of Chemical and Biomolecular Engineering, University of Notre Dame, 182 Fitzpatrick Hall, Notre Dame, IN, USA 46556

^cDepartment of Chemistry and Biochemistry, University of Notre Dame, 132 Nieuwland Science Hall, University of Notre Dame, Notre Dame, IN, 46556

*Corresponding author: Tel: +1 574 631 5164. Fax: +1 574 631 9236. Email: chongzheng.na@gmail.com. Address: 156 Fitzpatrick Hall, Notre Dame, IN, USA 46556.

Table S1. List of Movies

| Movie | File Name | Content | Counterpart in Text |
|----------|--------------|---|---------------------|
| Movie S1 | Movie_S1.avi | oil droplet alone | Figure 2a |
| Movie S2 | Movie_S2.avi | pristine CNTs dispersed at the oil-water | Figure 2b |
| | | interface | |
| Movie S3 | Movie_S3.avi | MCNTs dispersed at the oil-water interface | Figure 2c |
| Movie S4 | Movie_S4.avi | MCNTs and oil droplets under the influence | Figure 2d |
| | | of an external magnetic field | |
| Movie S5 | Movie_S5.avi | SPIONs dispersed at the oil-water interface | Figure 2e and f |
| | | and the movement of SPIONs in an external | |
| | | magnetic field | |

 $^{^{\}dagger}$ In Movies S1 – S3, the 3-D scans were collected from bottom up.

[‡]For Movies S4 and S5, a strong magnet was placed near the lower right corner at beginning of the movies and then gradually removed.

^{*}Some droplets in Movie S5 are not spherical because they are stuck on the walls of the liquid cell. The forces exerted by the walls can interfere with the effect of surface tension and thus alter the shapes of oil droplets. The shapes of the droplets do not, however, interfere with our interpretation that SPIONs move in and out of the droplets without moving them.