## **Supporting Information**

## An anti-overturn Janus sponge with excellent floating stability for simultaneous pollutant remediation and oil/water separation

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**Fig. S1** WCA data of selected hydrophobic part of the AJS as a function of increasing ODA coating cycles.



**Fig. S2** (a) Oil absorption capacity of the hydrophobic MF sponge (MF sponge/PDMS) for various oils. Inset shows the WCA of the MF sponge/PDMS. (b) A SEM image of the MF sponge/PDMS.



Fig. S3 Time-dependent UV-vis absorption spectra of MB after treatment with the hydrophilic part of the AJS  $(1^{st} - 6^{th})$ .



Fig. S4 Time-dependent UV-vis absorption spectra of MB after treatment with the hydrophilic part of the AJS  $(7^{th} - 12^{th})$ .



Fig. S5 Time-dependent UV-vis absorption spectra of MO after treatment with the hydrophilic part of the AJS  $(1^{st} - 4^{th})$ .



**Fig. S6** UV-vis absorption spectra of MB solution before and after treatment with the hydrophilic part of the (a) cube typed and (b) branch typed AJSs.



**Fig. S7** The residual water (colored blue with MB) contents in the hexane, diesel, silicone oil, and soybean oil separated by the pump.