Electronic Supporting Information

Ultrafast nano-structuring of superwetting Ti foam with robust antifouling and stability towards efficient oil-in-water emulsion separation

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This file contains Supplementary Figures S1-S6 and Table S1.

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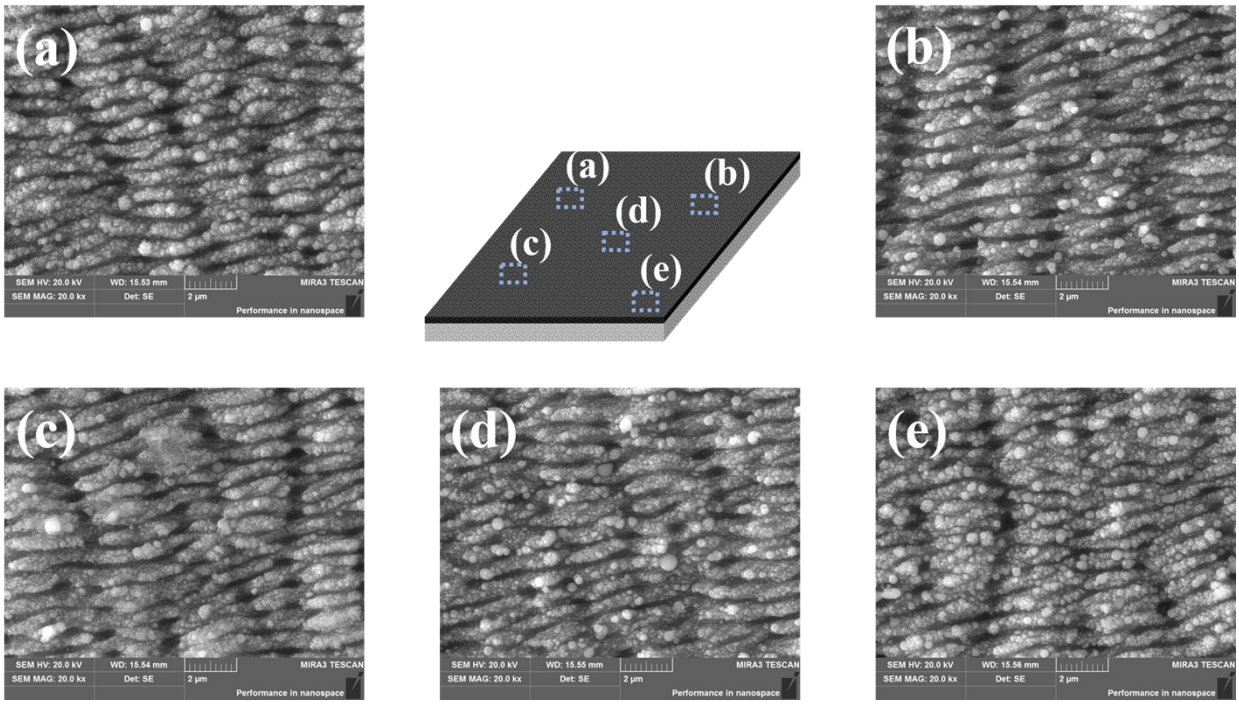

Figure S1. SEM images of different positions on the laser treated Ti foam.

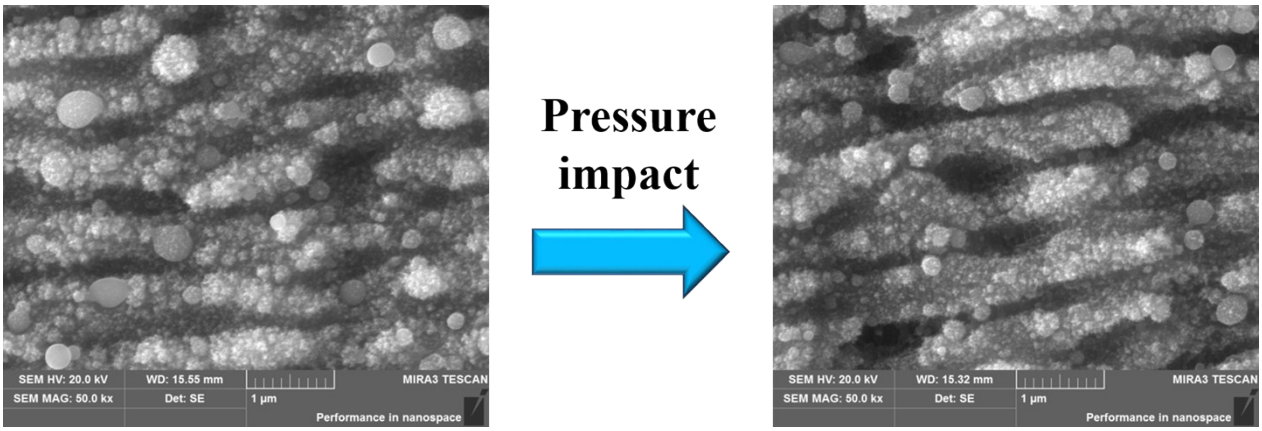

Figure S2. SEM images of laser treated Ti foam before and after oil-in-water emulsion separation under -5 kPa pressure.

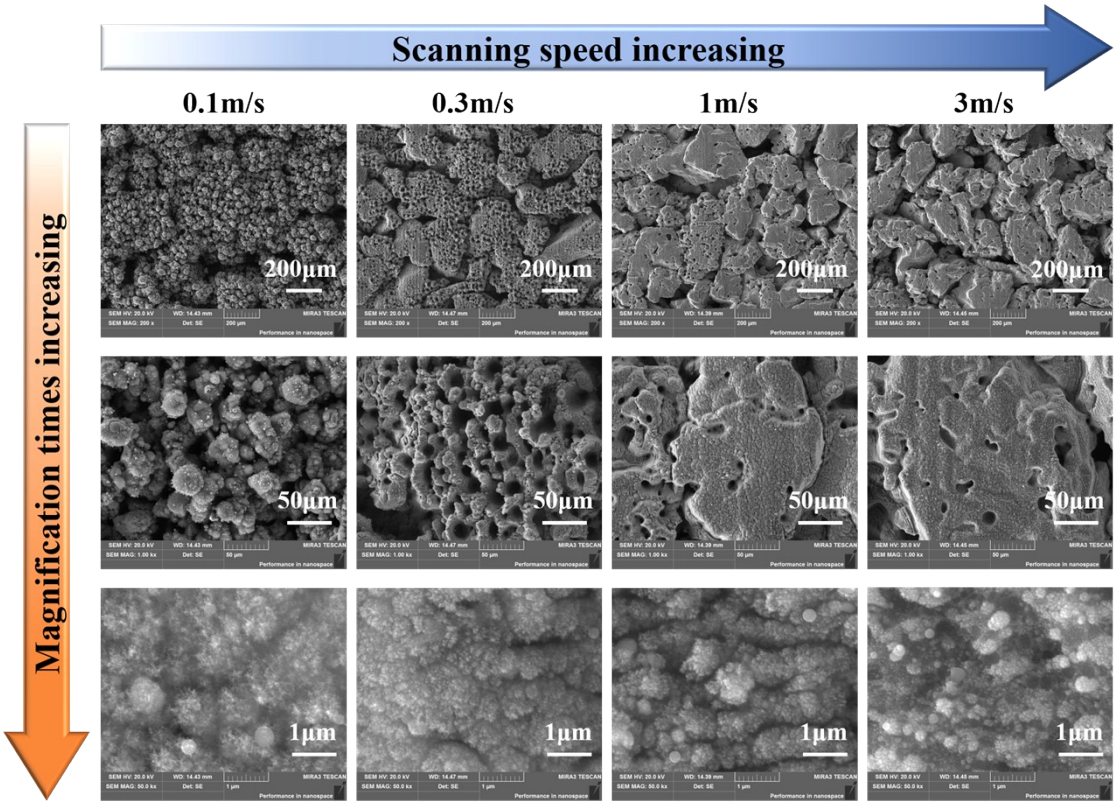

Figure S3. SEM pictures of different laser treated structures with various scanning speeds. The downsets are corresponding magnified pictures. (Laser power: 8 W)

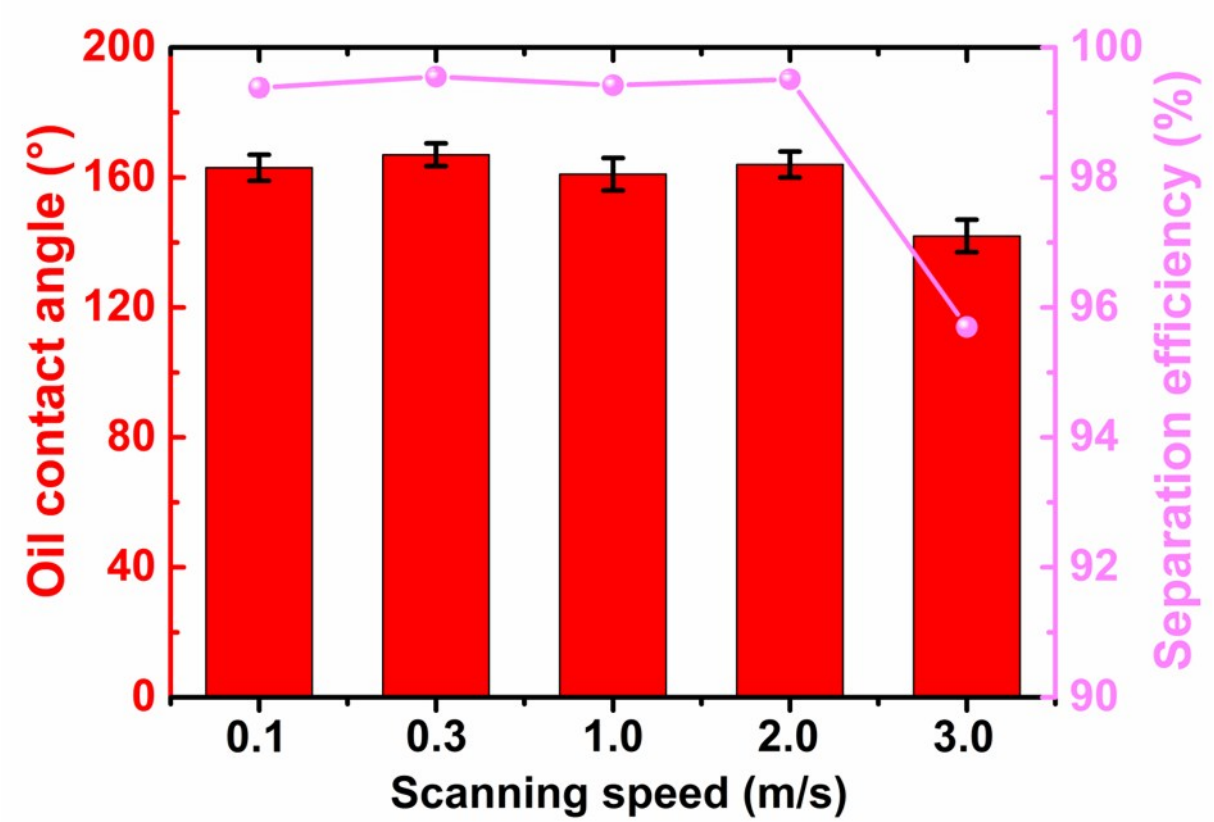

Figure S4. Oil contact angle and separation efficiency of Ti foam processed by different scanning speeds

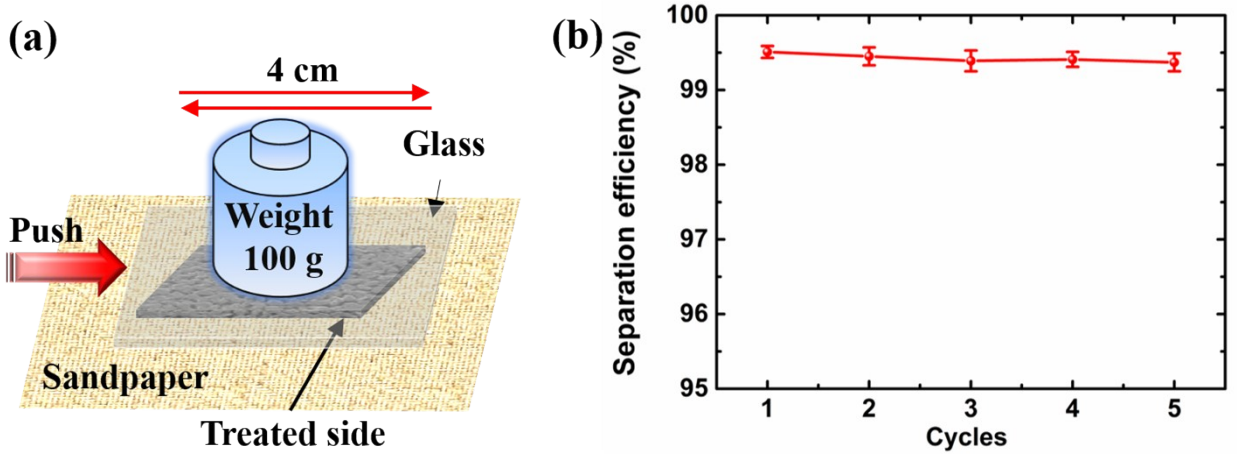

Figure S5. (a) Schematic of the sandpaper abrasion tests for the laser treated Ti foam. (b) Separation efficiency as a function of abrasion cycle number.

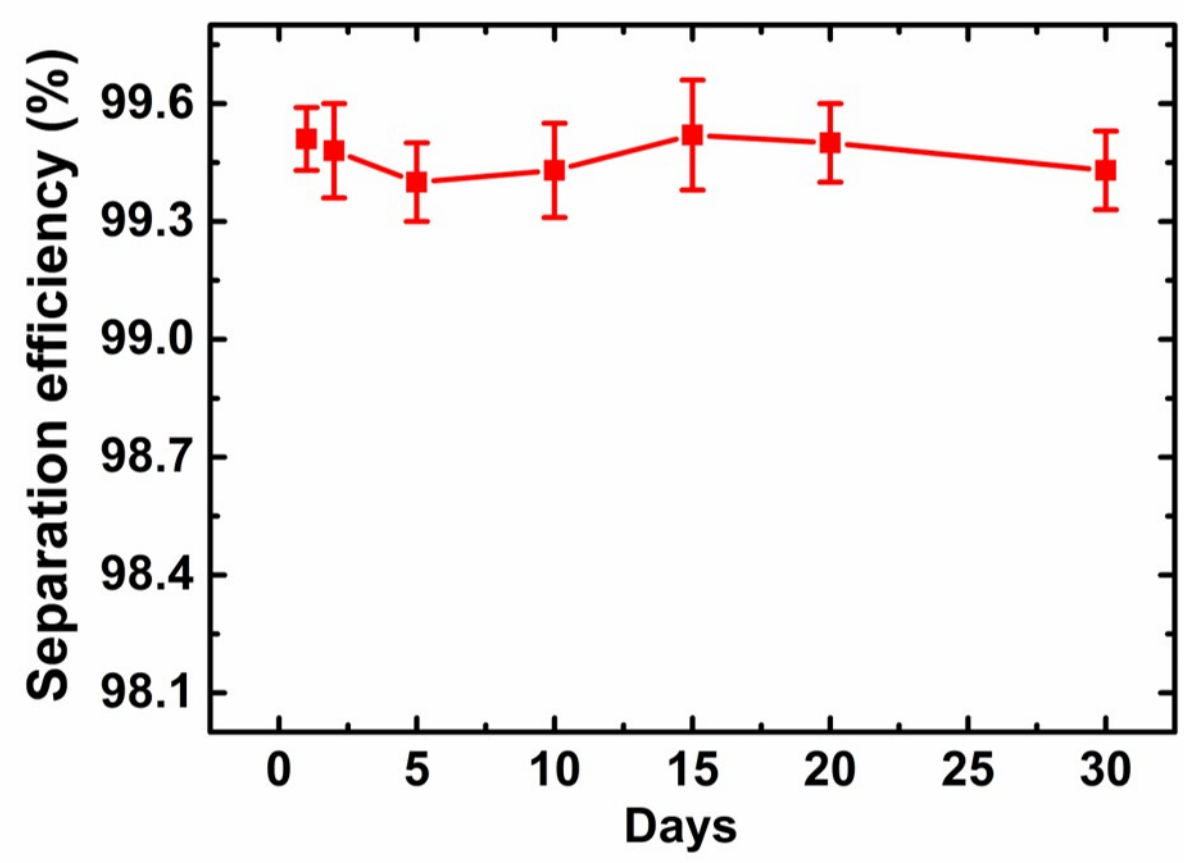

Figure S6. Separation efficiency of laser treated Ti foam by different days.

Table S1. Comparison of preparation efficiency for the oil-in-water emulsion separation materials

Wettability of materials	Size	Time consuming	Ref.
Superhydrophilic and underwater superoleophobic mesh	3.5 × 3.5 cm^2	Four steps, >10 hour	27
Superhydrophilic and underwater superoleophobic Membrane	-	Three steps, >42 hours	26
Superhydrophilic and underwater superoleophobic Ti foam	3.0 × 3.0 cm^2	Several steps, >8 hours	28
Superhydrophilic and underwater superoleophobic Ti foam	3.0 × 3.0 cm^2	Several steps, >4 hours	29
Superhydrophobic membrane	-	Several steps, >15 hours	24
Superhydrophilic and underwater superoleophobic mesh	5.0 × 5.0 cm^2	Several steps, >4 hours	25
Superhydrophilic and underwater superoleophobic Ti foam	2.3 × 2.6 cm^2	one step,<1 minutes	This work

Note: Time consuming is the minimum time listed in the above ref.