Supplementary information

Continuous and ultrafast MOF synthesis using droplet microfluidics nanoarchitectonics

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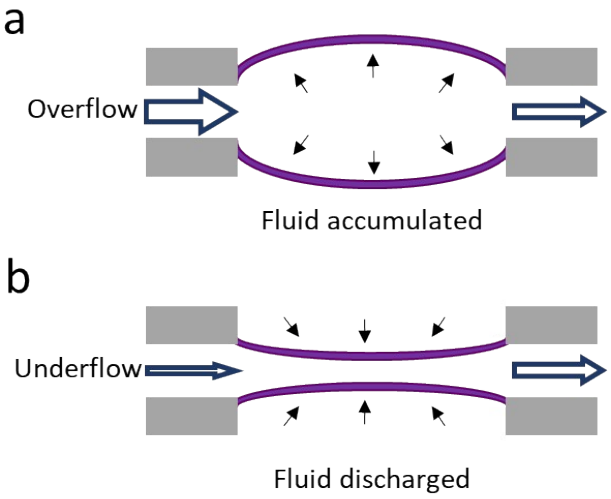

Figure S1. The principle of flow stabilizer. (a) The overflow can be spontaneously accumulated in the stabilizer via the expansion of the elastic membrane. (b) The underflow can be adjusted to the steady flow through fluid discharge due to the compression of the elastic membrane. This adjustable fluidic mechanism can eliminate the pulsatile flow and maintain a steady flow speed.

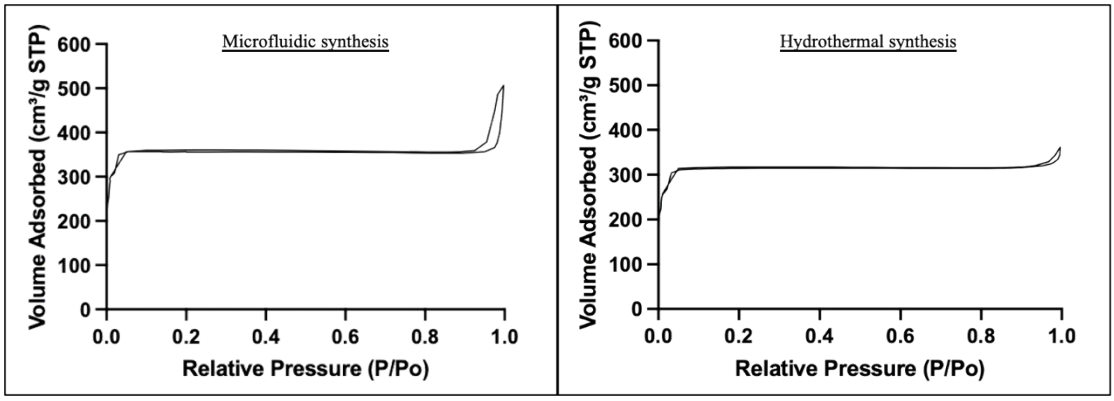

Figure S2. N_2 adsorption-desorption isotherms of the ZIF-8 synthesized by microfluidic and hydrothermal approaches.

Table S1 Summary of the properties of ZIF-8 synthesized by microfluidic and hydrothermal methods

	Microfluidic synthesis	Hydrothermal synthesis
BET Specific surface area (m^2/g)	1844	1302
Micropore volume (cm^3/g)	0.56	0.45
Mesopore volume (cm^3/g)	0.22	0.05
Total pore volume (cm^3/g)	0.78	0.56

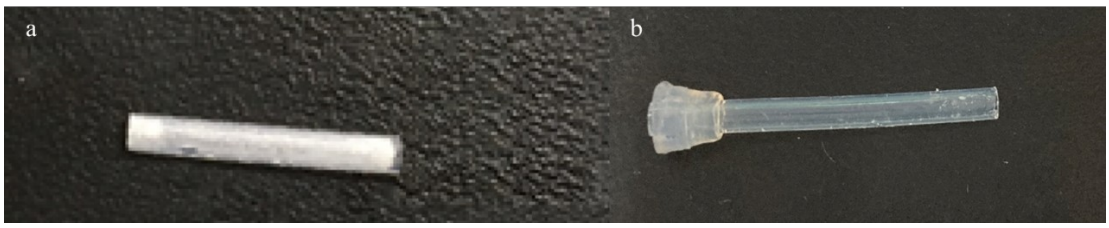

Figure S3. The tube after the Y-shaped junction after running the continuous ZIF-8 synthesis system for two hours, at a total precursor flow rate of (a) 100 μL/min, and (b) 200 μL/min.

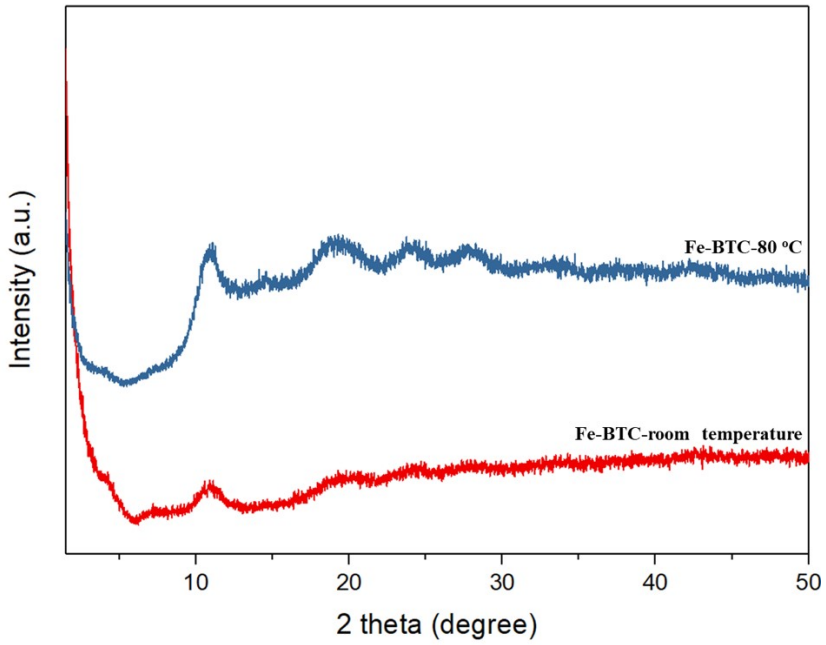

Figure S4. The XRD pattern of Fe-BTC synthesis by Fe(III) precursor.

Table S2. DLS measurement of microfluidic ZIF-8 and hydrothermal ZIF-8.

Method	Number Mean d.nm	PdI	Z-Ave d.nm	Pk 1 Mean Int d.nm	Pk 1 Area Int Percent	Pk 2 Mean Int d.nm	Pk 2 Area Int Percent
Microfluidic	601.3	0.096	668.3	681.2	100.0	-	-
Hydrothermal	315.1	0.258	660.4	984.7	86.3	258.3	13.7

Table S3. The SEM-EDX element ratio of Au@ZIF-8.

Element	Weight%	Atomic%
C K	41.93	62.56
N K	21.64	27.69
O K	2.34	2.63
Zn L	21.94	6.01
Pt M	6.82	0.63
Au M	5.33	0.48
Total	100.00	

Table S4 Size distribution of Au particles in ZIF-8 nanostructures.

Size (nm)	Distribution (%)
<10	42
10-20	26
20-30	16
30-50	12
>50	4