## Supporting Information for High-throughput and Controllable

## Fabrication of Helical Microfibers by Hydrodynamically Focusing

## Flow

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Figure S1. helical microfiber of more than 100 meters long.

The length of this microfiber is calculated by the volume of solution and the linear diameter of helical fiber.

linear length = 
$$\frac{volume}{\frac{\pi}{4}D_l^2}$$

With volume of 7 mL and  $D_1$  of 130  $\mu$ m, the linear length is estimated to be 528 meters long. Therefore, the total length of this fiber is estimated to be more than 100 meters.



Figure S2. Different morphology of microfibers: a) straight; b) wavy; c) helical; d) disordered.



Figure S3. Morphology transformation from helical microfiber to disordered microfiber during the spinning process, which reflects the instability of some spinning processes.

Flowrate of core	Flowrate of sheath	Picture captured
phase (µL/min)	phase (µL/h)	
30	6000	in the second se
30	7000	
30	8000	
30	9000	

Table S1. Pictures captured under different flowrates of core and sheath phases.

30	10000	
30	12000	
30	18000	
10	7000	A T T T TO DO DO DO

15	7000	1 2 2 2 2 2 9 0 0 0 9 9 9 9 9 9 9 9 9 9 9
20	7000	NOT STORE OF STORE
25	7000	
30	7000	

35	7000	
40	7000	C. L. C. L. C. N. N. N. D.



Figure S4. Fabrication of helical microfibers using glass capillaries of different inner diameter,  $D_a$ : a) 0.7 mm; b) 0.95 mm; c) 1.12 mm. The scale bar is 500  $\mu$ m.



Figure S5. Phase diagram of microfiber fabrication under low sheath phase flowrate.

To prevent the clogging of microfibers in the tube, a motor was used to assist the collection of microfibers. Because the motor speed and the fiber generation speed could not be accurately matched, the microfiber spinning was not as smooth and uniform as Video S1. However, the obtained fibers could still maintain a well-defined helical morphology. It should be noted that the coaxiality of the microchannels affects the spinning performance greatly.



Figure S6. Helical microfibers loaded with magnetic nanoparticles: a) microscopic image; b) optical image captured by cellphone. The scale bar is 500  $\mu$ m.