## Femtosecond-Laser-Patterned Origami Janus Membrane toward

## **Enhanced Water Fog Harvesting**

YanSheng Yao, <sup>a</sup> Tao Peng, <sup>a</sup> Yubin Peng, <sup>a</sup> Qiangsong Meng, <sup>a</sup> Suwan Zhu, <sup>b</sup>\* Yanlei Hu, <sup>b</sup> Jiawen Li, <sup>b</sup> Dong Wu<sup>b</sup>

<sup>a.</sup> Intelligent Manufacturing Laboratory, School of Mechanical and Electrical Engineering, Anhui Jianzhu University, Hefei 230009, China.

<sup>b.</sup> CAS Key Laboratory of Mechanical Behavior and Design of Materials, Key Laboratory of Precision Scientific Instrumentation of Anhui Higher Education Institutes, Department of Precision Machinery and Precision Instrumentation, University of Science and Technology of China, Hefei 230026, China.

\* Corresponding author

E-mail: suwanzhu@ustc.edu.cn



Figure S1. Kinetic characterization of fog flow using a high-speed camera at a 200× slow motion.



**Figure S2.** SEM images of copper foam morphologies in various scanning speeds and laser-ablating power parameters at different magnifications. It is observed that a slower scanning speed and a greater laser power would generate hollowed branches in copper foam.



Figure S3. Schematic diagram of different scanning modes of laser processing. The green line denotes the laser spot path.



**Figure S4.** Impact of diverse laser processing parameters on WCR of O-P-Janus, including (a) patterning periods, (b) processing width and (c) scanning mode. (d) The long-term durability test of a fresh O-P-Janus during eight days.