

1 **Smart Bio-gel Optofluidic Mach-Zehnder Interferometers Multiphoton-**
2 **lithographically Customized with Chemo-mechanical-opto Transduction**
3 **and Bio-triggered Degradation**

4 Zhi-Shan Hou,^a Yun-Lu Sun,^{*b} Qi-Song Li,^{*c} Xudong Fan,^b and Rong Cheng^{*d}

5
6 ^aState Key Laboratory of Precision Measurement Technology and Instruments, Department of Precision Instrument,
7 Tsinghua University, Haidian, Beijing 100084, China.

8 ^bDepartment of Biomedical Engineering, University of Michigan, 1101 Beal Ave., Ann Arbor, MI 48109, USA.

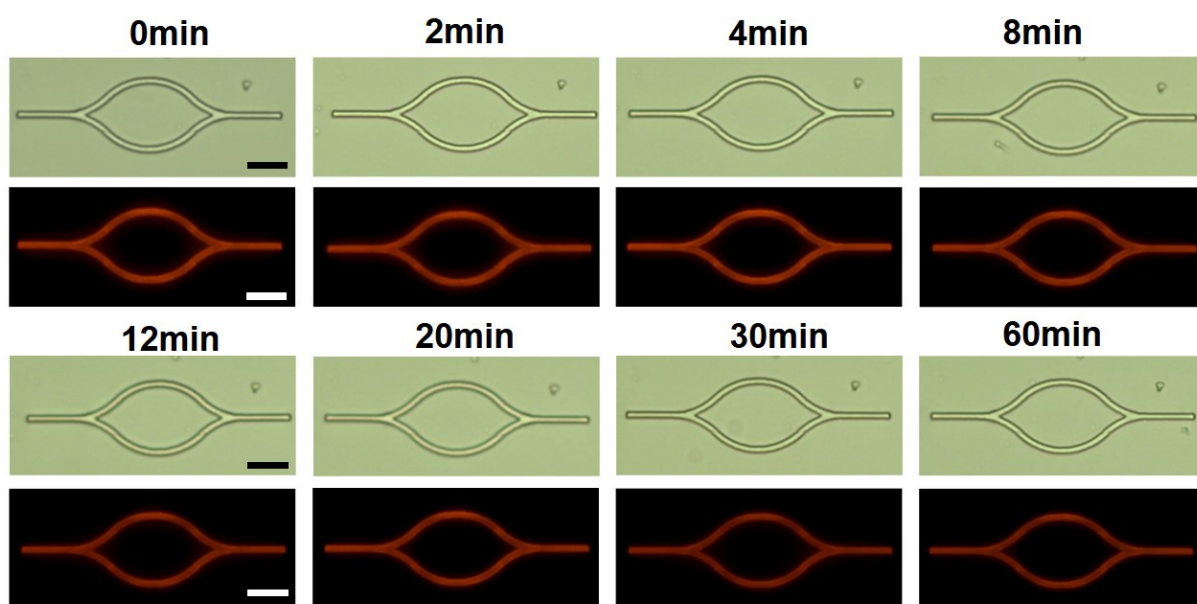
9 ^cKey Laboratory of Materials for High Power Laser, Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of
10 Sciences, Shanghai 201800, China.

11 ^dDepartment of Mechanical Engineering, Tsinghua University, Haidian, Beijing 100084, China.

12 E-mail: yunlus@umich.edu; liqisong@siom.ac.cn; chengr@tsinghua.edu.cn

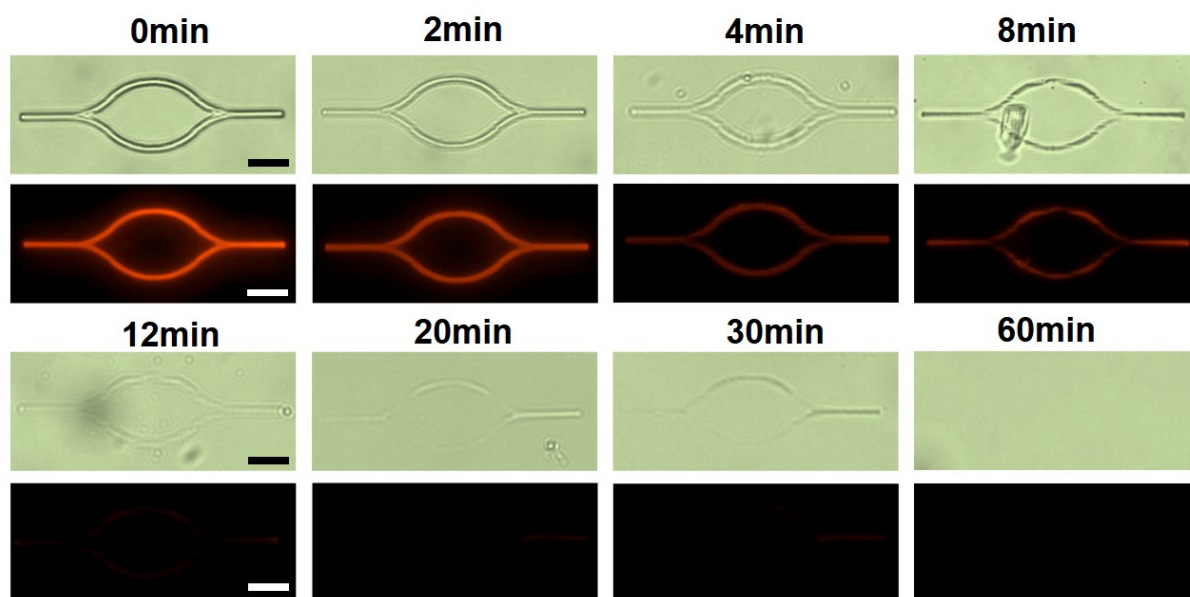


1
 2 **Figure S1.** The output light intensity of the (a) P-MZIs and (b) unbalanced PMZI along with
 3 Na_2SO_4 concentration.



1

2 **Figure S2.** The protein-hydrogel in phosphate-buffered saline (PBS); (58°C) scale bars, 10
3 μm .



1
2 **Figure S3.** The proteinase K digestion test with protein-hydrogel; (1 mg/ml, 58°C) scale bars,
3 10 μ m.