Supporting Information

Semi-liquid Metal enabled Highly Conductive Wearable Electronics for Smart Fabrics

Rui Guo, Huimin Wang, Xuyang Sun, Siyuan Yao, Hao Chang, Hongzhang Wang, Jing Liu, and Yingying Zhang**

R. Guo, H. Wang and Corresponding Author Prof. Dr. J. Liu
Department of Biomedical Engineering, School of Medicine, Tsinghua University
Beijing, 100084, China
*E-mail: jliubme@tsinghua.edu.cn

H. Wang, Prof. Y. Y. Zhang
Key Laboratory of Organic Optoelectronics and Molecular Engineering of the Ministry of Education, Department of Chemistry, Tsinghua University, Beijing 100084, PR China
*E-mail: yingyingzhang@tsinghua.edu.cn

S.Yao, H. Chang, Dr. X. Sun, Prof. J. Liu
Beijing Key Lab of CryoBiomedical Engineering and Key Lab of Cryogenics, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, Beijing 100190, China.
*E-mail: jliu@mail.ipc.ac.cn;

Prof. J. Liu
School of Future Technology, University of Chinese Academy of Sciences, Beijing 100049, China

S1. The fabrication process of Cu-EGaIn

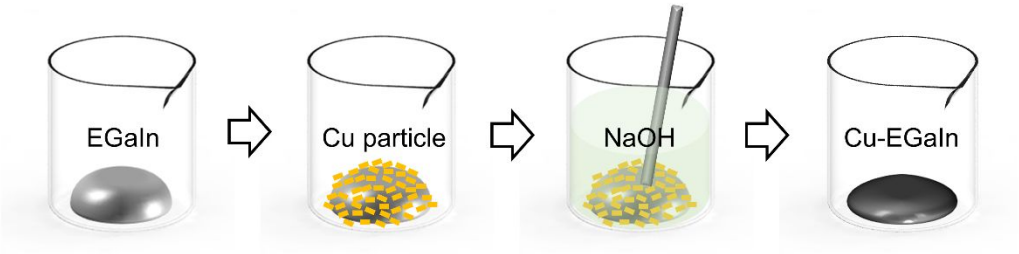

Figure S1. The fabrication process of Cu-EGaIn.

S2. Electrical conductivity of Cu-EGaIn with different contents of Cu particles

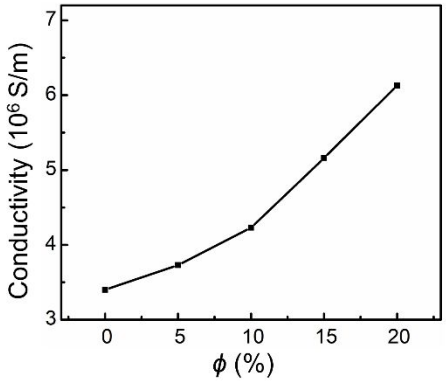

Figure S2. The electrical conductivity of Cu-EGaIn with different contents of Cu particles.

S3. Fabrication and effect of Cu-EGaIn printed on woven cotton fabrics

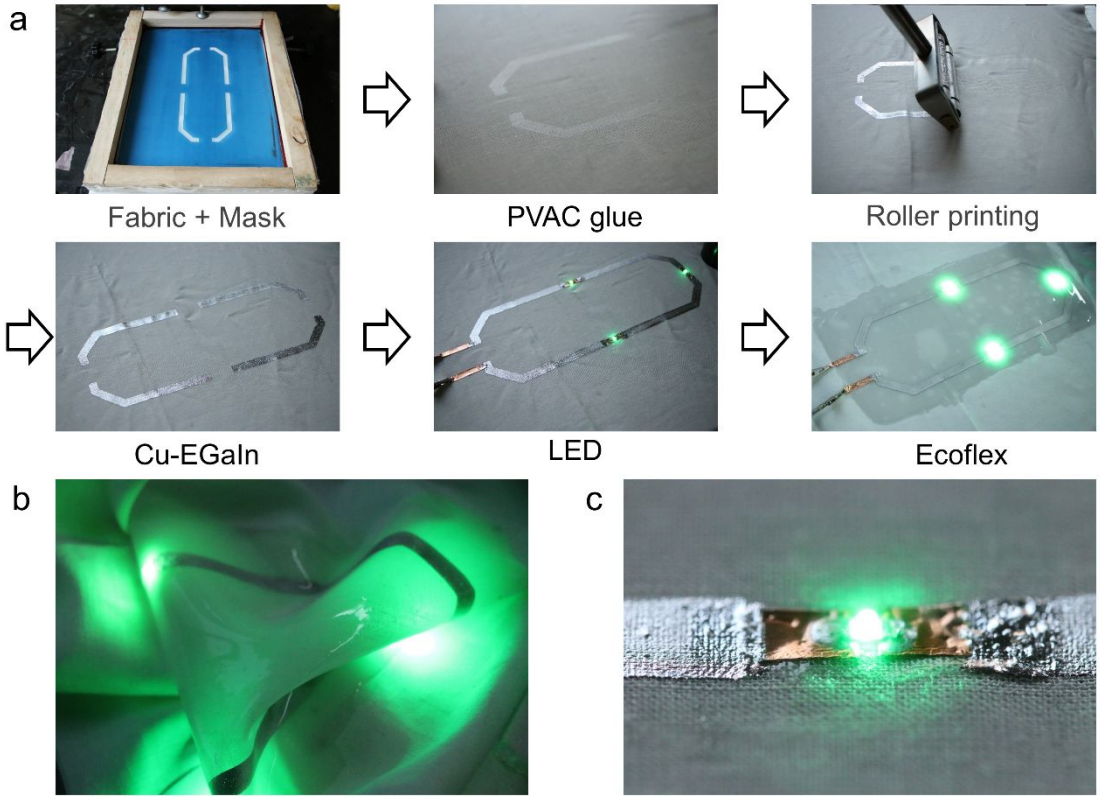

Figure S3. (a) The fabrication process of Cu-EGaIn printed on woven cotton fabrics. (b) The flexibility of Cu-EGaIn printed on woven cotton fabrics. (c) Cu-EGaIn lines connected with LED light.

S4. Fabrication and effect of Cu-EGaIn printed on knitted cotton fabrics

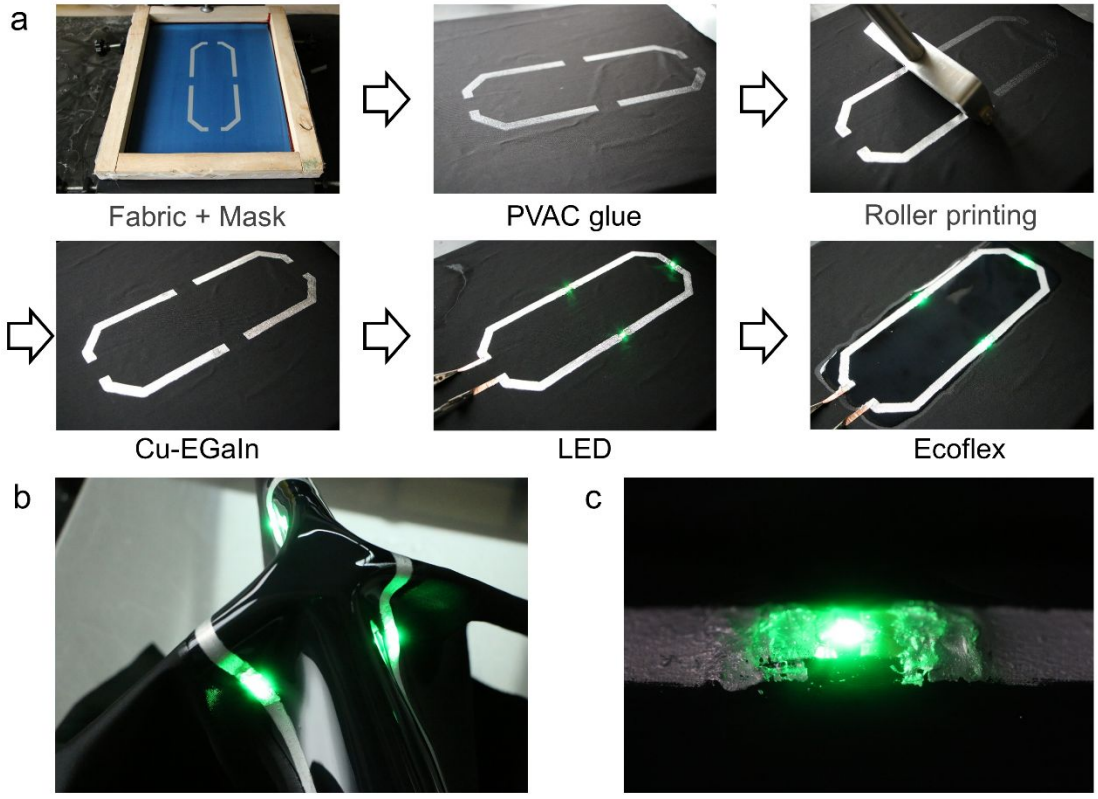

Figure S4. (a) The fabrication process of Cu-EGaIn printed on knitted cotton fabrics. (b) The flexibility of Cu-EGaIn printed on knitted cotton fabrics. (c) Cu-EGaIn lines connected with LED.

S5. Tilted slopes test of Cu-EGaIn on four substrates

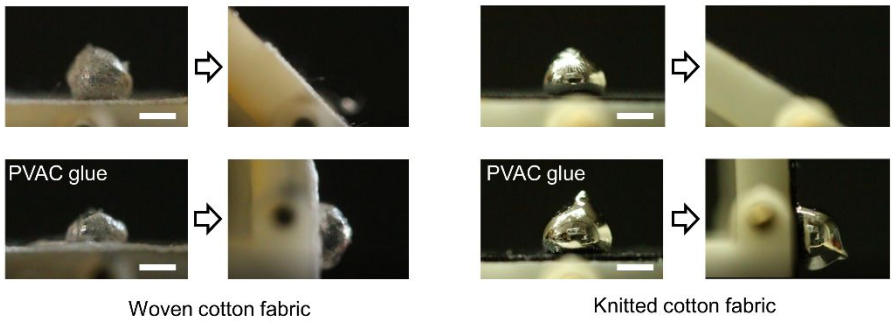

Figure S5. The images of Cu-EGaIn on four substrates (woven cotton fabric, knitted cotton fabric, woven cotton fabric covered PVAC glue and knitted cotton fabric covered PVAC glue) (scale bar = 2 mm).

S6. Circuit diagram of the interactive circuit

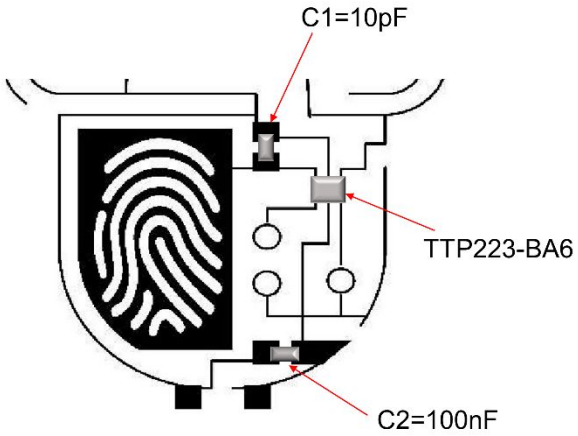

Figure S6. The circuit diagram of the interactive circuit.

S7. Waterproof test of LED array

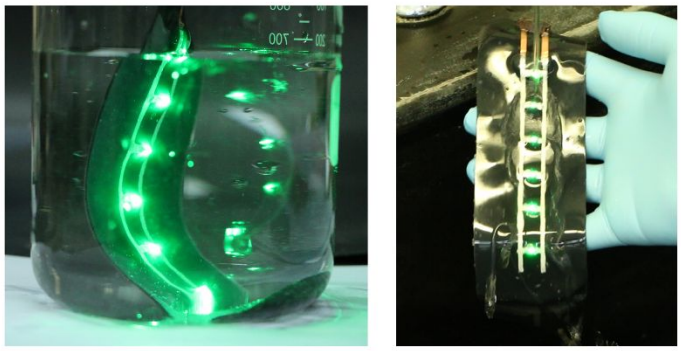

Figure S7. The waterproof test of LED array.

S8. Freezing tests of Cu-EGaIn based smart fabric

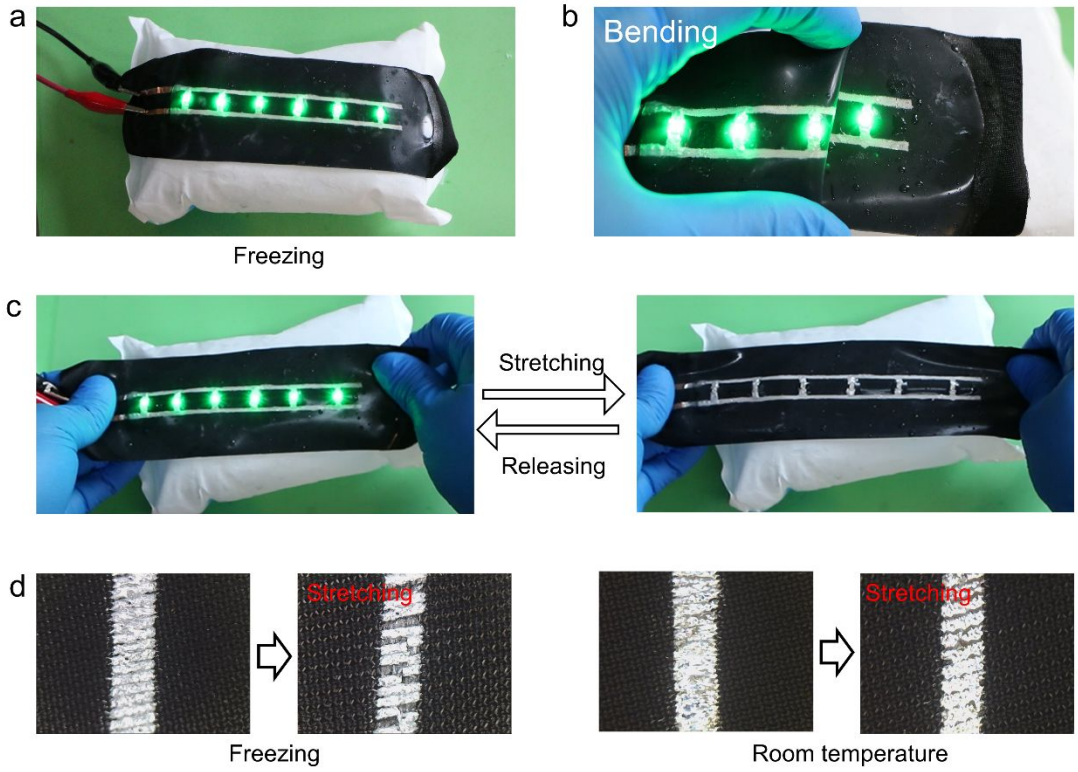

Figure S8 (a) a LED array placed on ice. (b) The bent LED array placed on ice. (c) The stretched LED array placed on ice. (d) The micrographs of Cu-EGaIn lines at freezing and room temperature.

Supplementary videos (file attached/ available online)

Video S1. The interactive circuit.

Video S2. The stretchable LED array.

Video S3. The washable LED array.

Video S4. The wearable thermal management circuit.