## **Supporting Information**

## Surface plasmon coupling regulated CsPbBr3 perovskite lasers in metal-

## insulator-semiconductor structure

Maogao Gong<sup>1</sup>, Di Jiang<sup>1</sup>, Tao Tao<sup>1</sup>, Feng Chen<sup>2\*</sup>, Chunxiang Xu<sup>3\*</sup>, Ting Zhi<sup>4</sup>, Wei Liu<sup>5</sup>,

Bin Liu<sup>1\*</sup>, Rong Zhang<sup>1</sup>, Youdou Zheng<sup>1</sup>

- Jiangsu Provincial Key Laboratory of Advanced Photonic and Electronic Materials, School of Electronic Science and Engineering, Nanjing National Laboratory of Microstructures, Nanjing University, Nanjing 210093, P. R. China
- School of Physical and Mathematical Sciences, Nanjing Tech University, Nanjing 211800, P. R. China
- State Key Laboratory of Bioelectronics, School of Biological Sciences and Medical Engineering, Southeast University, Nanjing 210096, P. R. China
- 4. School of Electronic Science and Engineering, Nanjing University of Posts and Telecommunications, Nanjing 210023, P. R. China
- 5. College of Optical, Mechanical and Electrical Engineering, Zhejiang A&F University, Hangzhou 311300, P. R. China



Fig. S1: Cross-sectional FESEM images of samples B (a) and C (b), respectively.

The cross-sectional FESEM images of remaining samples B and C with varying layer thicknesses were shown in Fig. S1. A clear interface distribution can be observed, and the thickness of each layer can match well with our previous designed goal in Table 1. However, due to the measurement condition limitation of FESEM equipment, the upper  $SiO_2$  layers having a thickness of 10 nm and 30 nm are hard to be detected accurately.