Supporting Information

Direct writing-in and visualizing reading-out data storage with high capacity in low cost plastics

Xin Wei[1], Weiwei Zhao[1], Jintao Yang[1], Yong Zhang[1], Junming Song[1], Zhenhua Ni[1, †], Hongwei Liu[2, †], Junpeng Lu[1, †]

[1] School of Physics and Key Laboratory of MEMS of the Ministry of Education, Southeast University, Nanjing 211189, China
[2] Jiangsu Key Lab on Opto-Electronic Technology, School of Physics and Technology, Nanjing Normal University, 1 Wenyuan Road, Nanjing 210023, China

† Correspondence to: Zhenhua Ni, zhni@seu.edu.cn; Hongwei Liu, phylhw@njnu.edu.cn; Junpeng Lu, phyljp@seu.edu.cn.
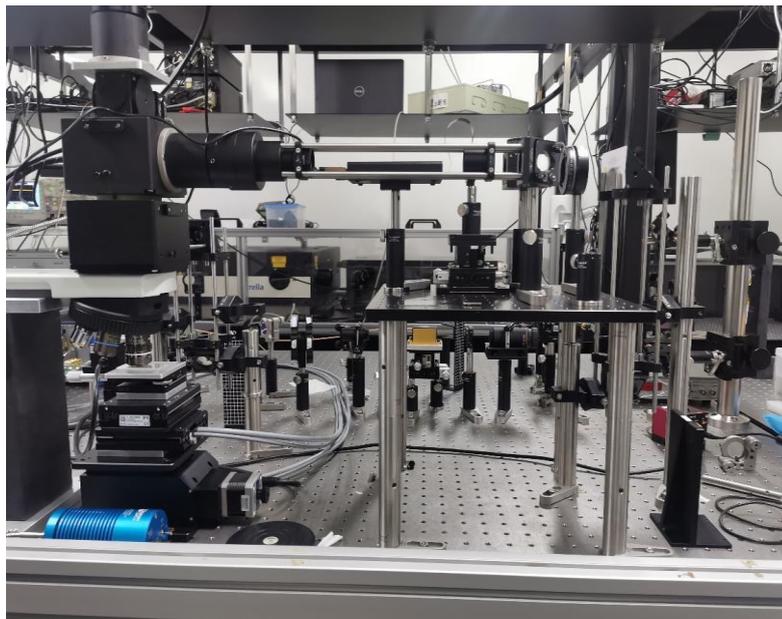
Figure 1. Actual scene of self-developed practical laser processing equipment.
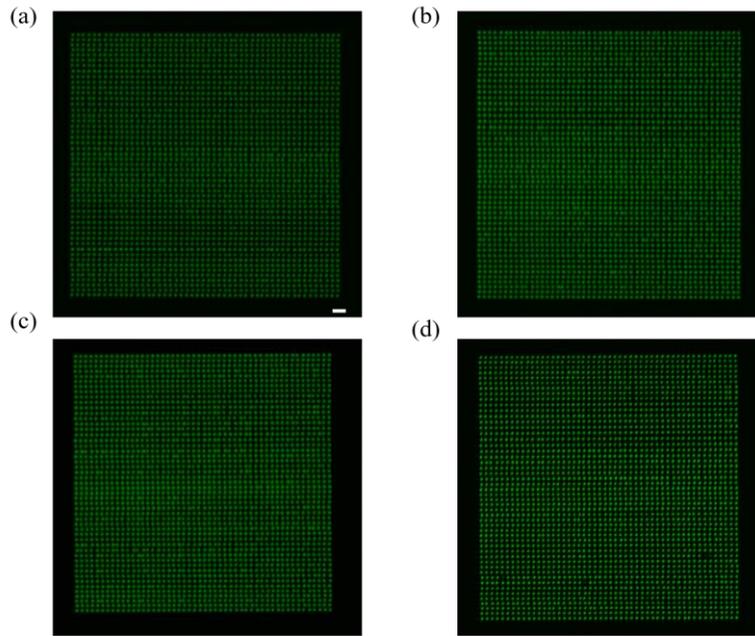
Figure 2. (a)-(d) Confocal fluorescence microscope images of dots written by a fs laser with a single pulse of precise energy in PC, PCC, PS, and PMMA, respectively. The excitation wavelength was 405 nm, and the scale bar was 10 μm.
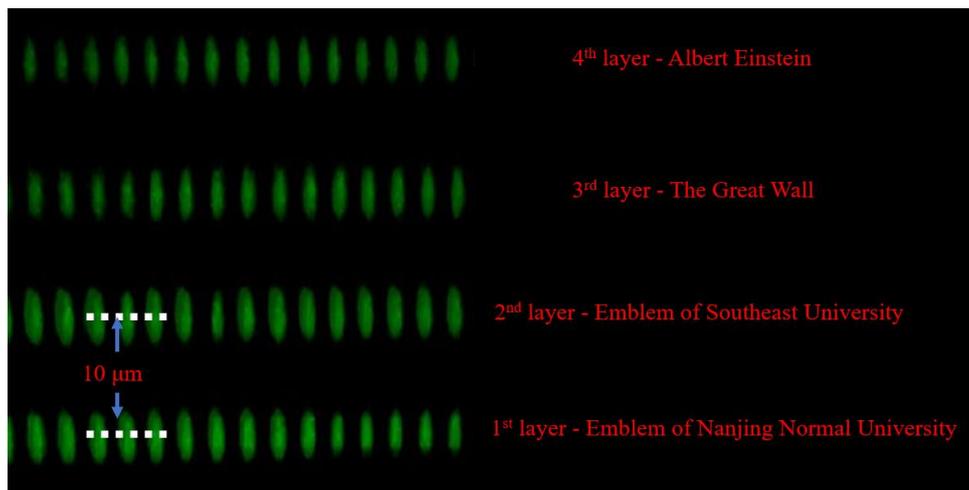

Figure 3. 3D confocal fluorescence microscopy images of the 1st to 4th sections.
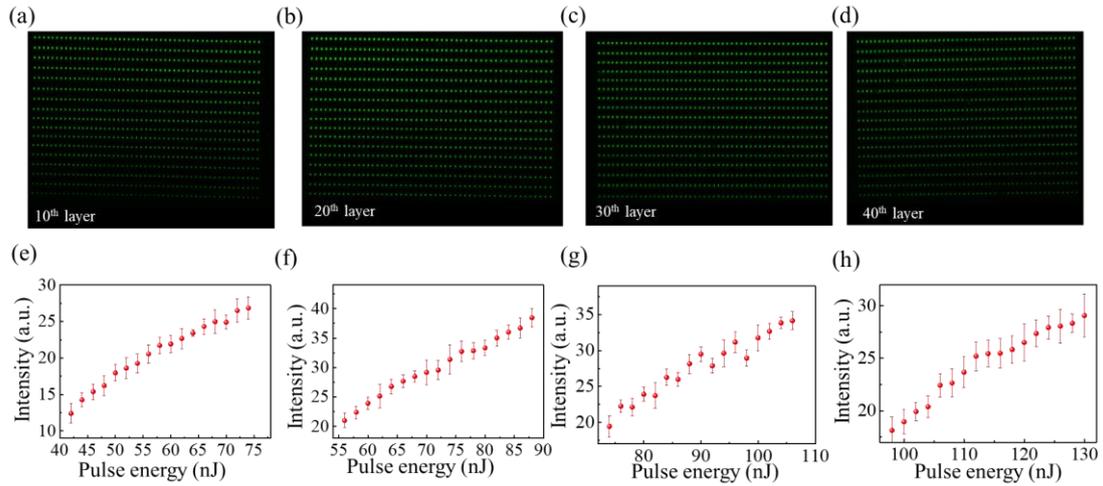
Figure 4. (a)-(d) Confocal fluorescence microscope image and evolution of the fluorescence intensity of the dots (10th, 20th, 30th, and 40th layers) written by a fs laser with a single pulse of precise energy. The excitation wavelength was 405 nm. The threshold power is 42 nJ for the 10th layer, 56 nJ for the 20th layer, 74 nJ for the 30th layer, 96 nJ for the 40th layer and 114 nJ for the 50th layer.
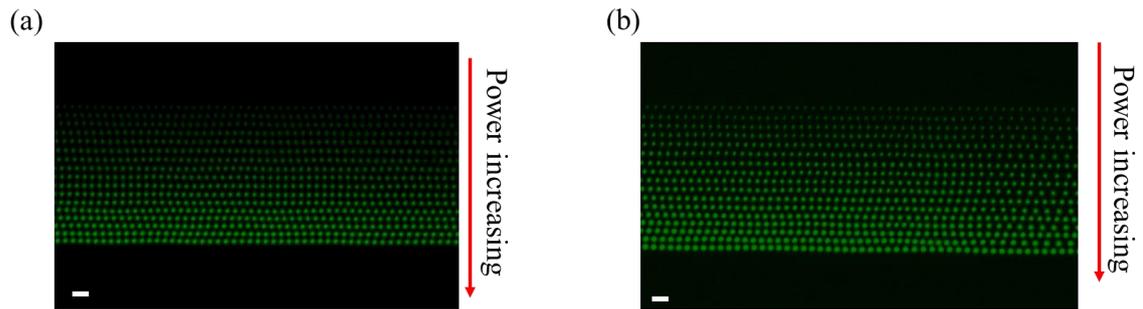

Figure 5. Confocal fluorescence microscope image of the 1st layer. (a) Fresh sample, (b) aged sample. The aging samples were placed in an environment with a relative humidity of 85% and 85 ℃ for 96 hours. The scale bar is 8 μm.