

Technical Data Sheets

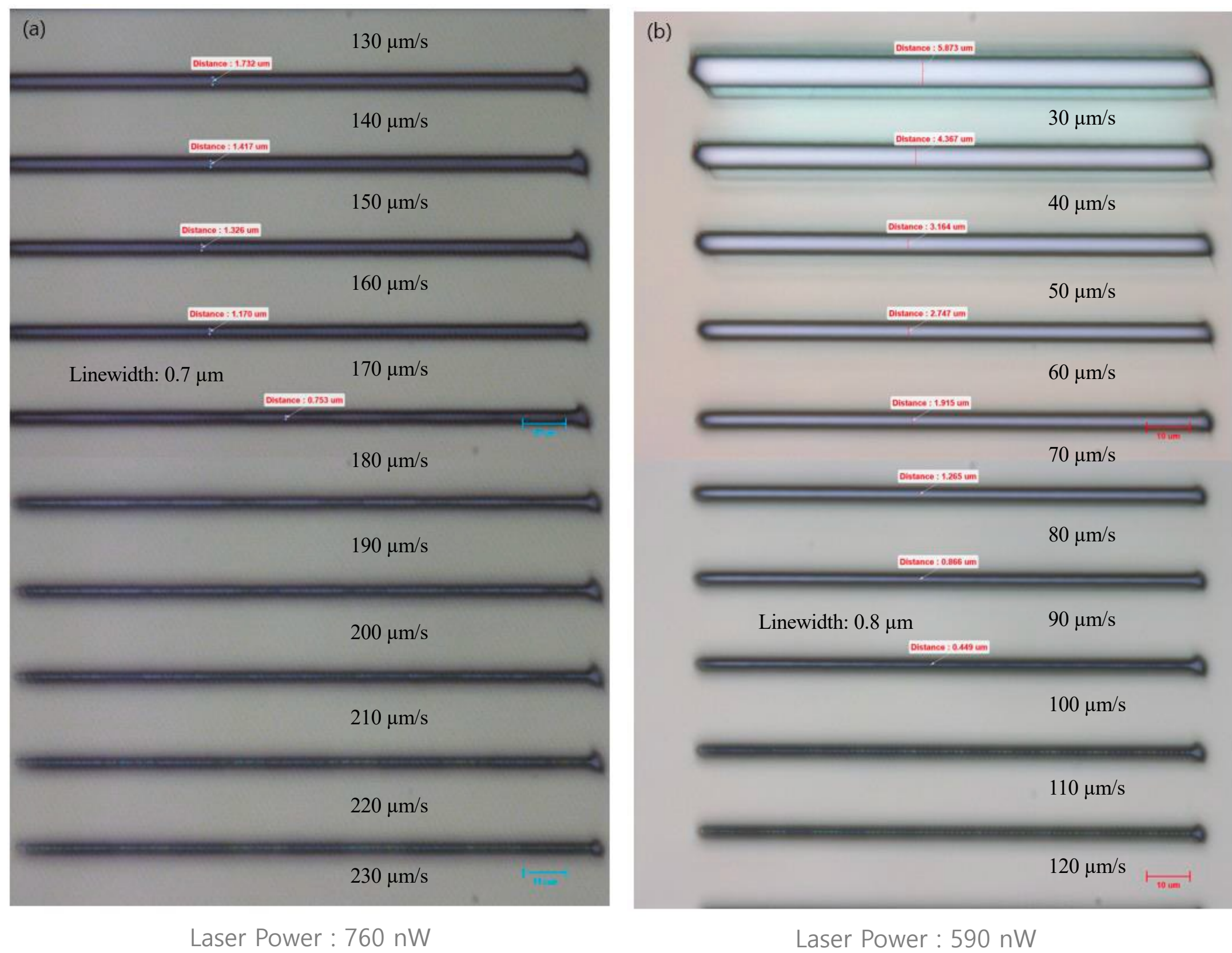
Laser Direct Writer
UVW04



Experimental Data Using UVW02

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1. LINEWIDTH vs. WRITING SPEED



(a) linewidth with changes in laser velocity, ranging from 130-220 μm/s, while maintaining a constant laser power of 760 nW. At a velocity of 170 μm/s and the specified laser power, the line width narrows down to approximately 0.7 μm.

(b) The drawing speed from 30- 120 μm/s, with the laser power constant at 590 nW. At a speed of 90 μm/s at this laser power, the resulting linewidth measures about 0.8 μm

Experimental Data Using UVW02

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2. WRITING SPEED vs. LASER POWER ANALYSIS

- Photoresist used: PR (AZ® GXR-601-46 cps) spin-coating at 4000 rpm → 90°C soft baking

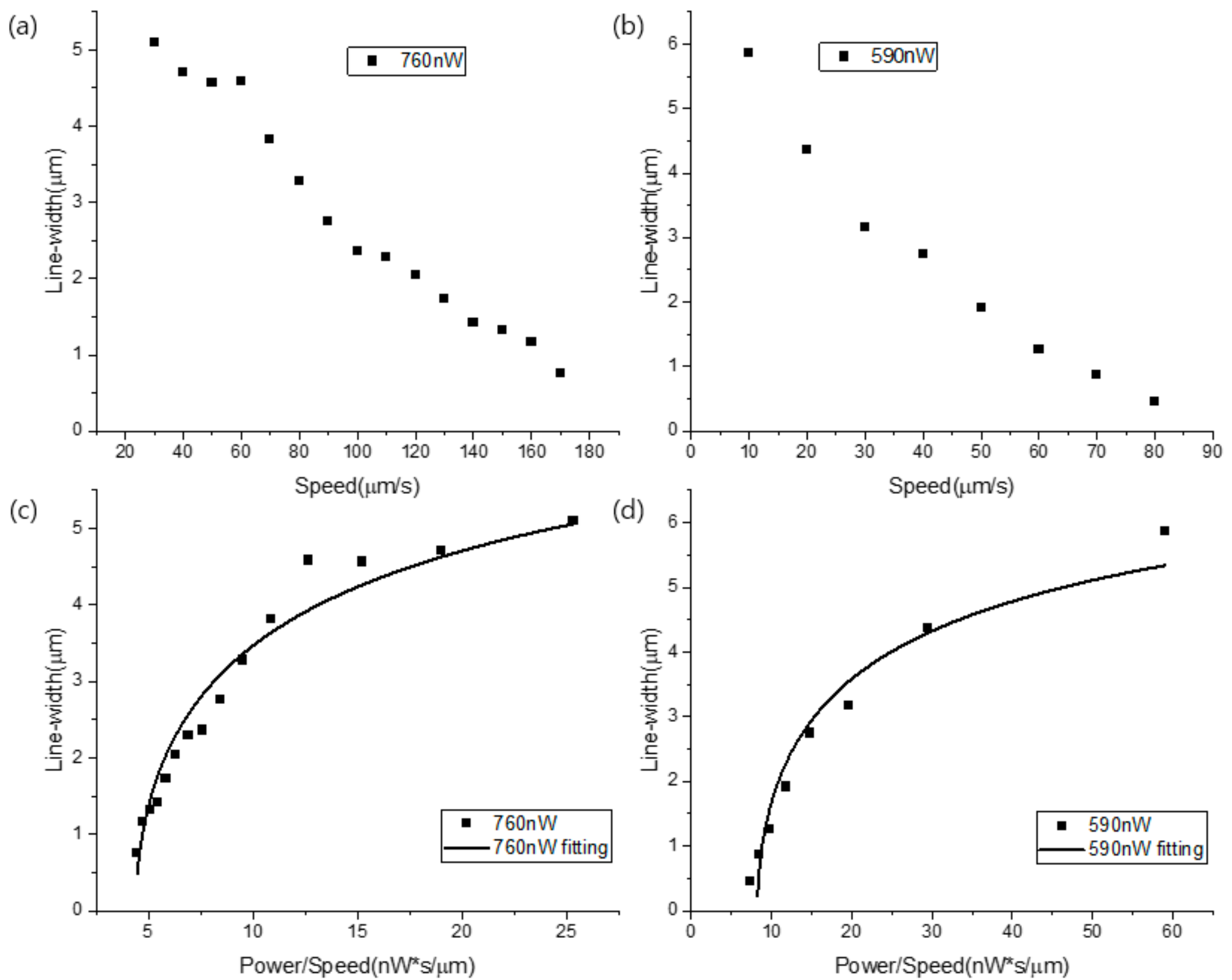


Figure 2 (a-b) The correlation between drawing speed and linewidth at laser power of 590 nW and 760 nW, respectively. (c-d) demonstrate the relationship between linewidth and the power-to-speed ratio for 590 nW and 760 nW laser powers, respectively.

Experimental Data Using UVW02

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3. LIFT - OFF PROCESS FORELECTRODE PATTERNING ON MOS₂

- bilayer photoresist used: polymethylglutarimide (PMGI, SF9) resist spin-coating at 4000 rpm → soft bake @ 160-210 ° C → PR (AZ® GXR-601-46 cps) spin-coating at 4000 rpm → 90 ° C soft baking

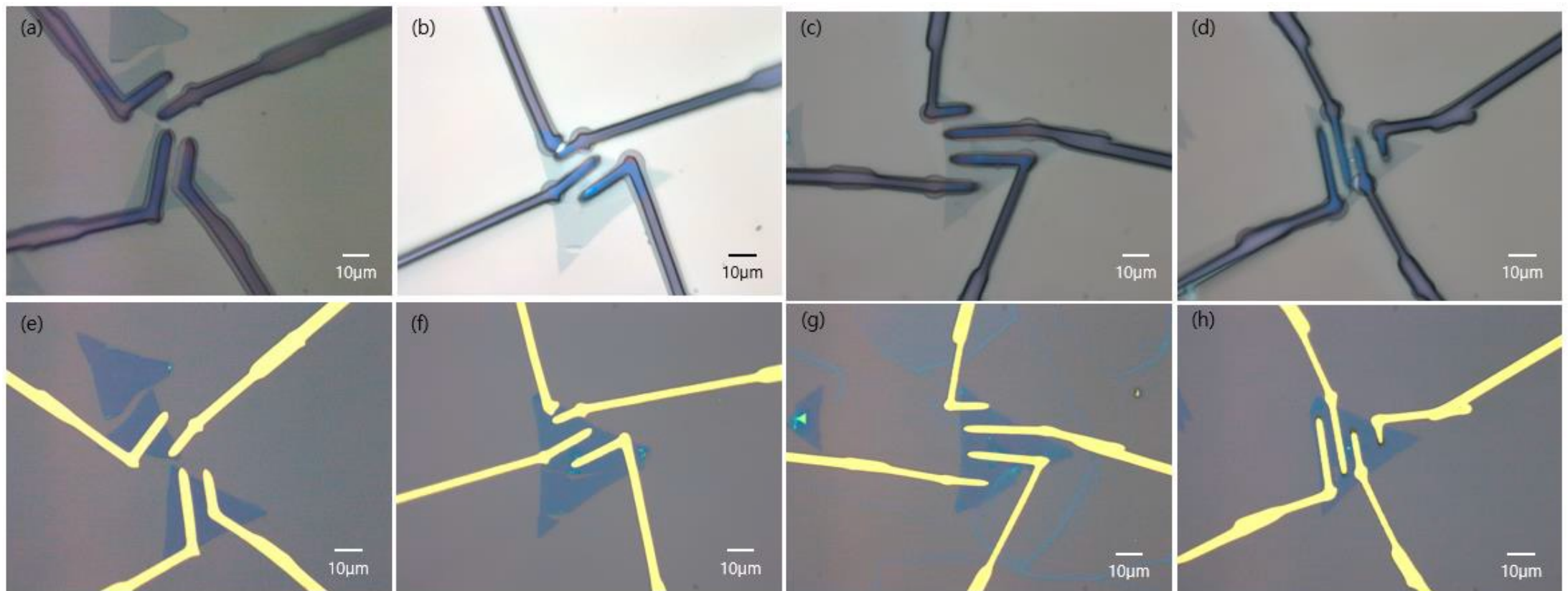


Figure3. (a-d) Electrode patterning on a MoS₂ sample, ~30μm in size, using maskless lithography. The semicrographs were taken after development. (e-h) Micrographs of the final devices are shown after the lift-off process. Deposition of 10nm of Bi, succeeded by the deposition of 40nm of Au using an E-beam evaporator.

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