

# Highly Varied Reaction Cavities within a Single Molecular Crystal

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<sup>2</sup>Department of Chemistry and Biochemistry, Illinois Wesleyan University,  
Bloomington, Illinois, 61701, United States

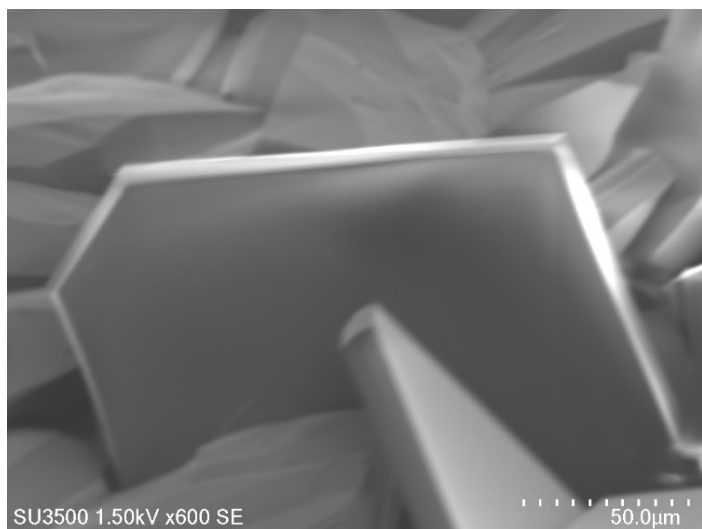
\* Corresponding author: E-mail address: [jciszek@luc.edu](mailto:jciszek@luc.edu) (Jacob W. Ciszek)

## *N*-methylmaleimide Reacted Crystals

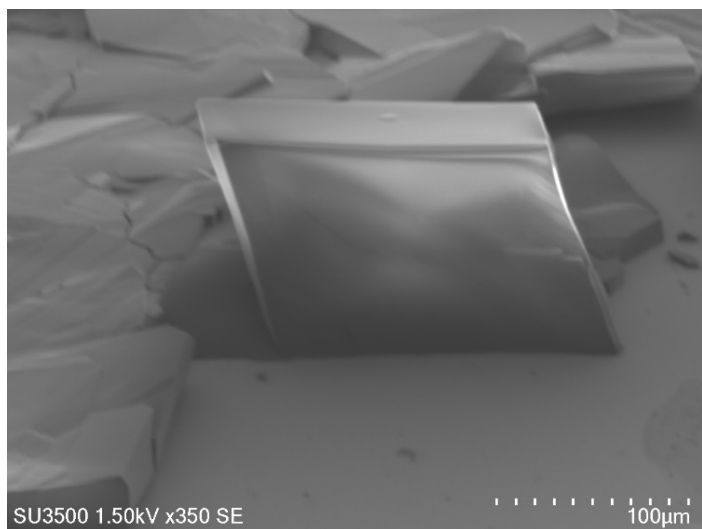
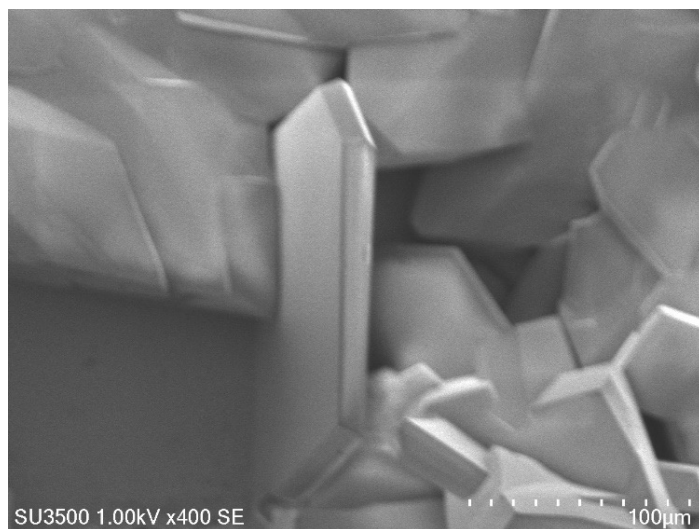
Left: Image of crystal with tilted stage used for indexing. The crystal is  $X^\circ$  off of parallel to the frame.

Right: Image of crystal when EDS was taken and no stage tilt.

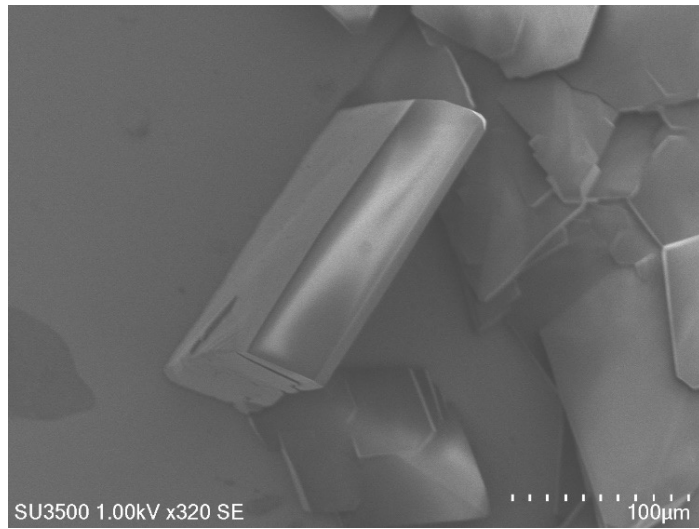
( $1\bar{1}0$ )



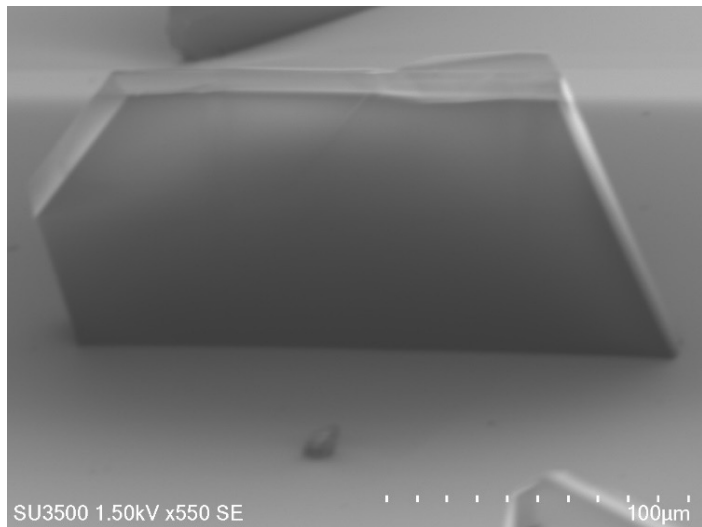
Tilt: 10°



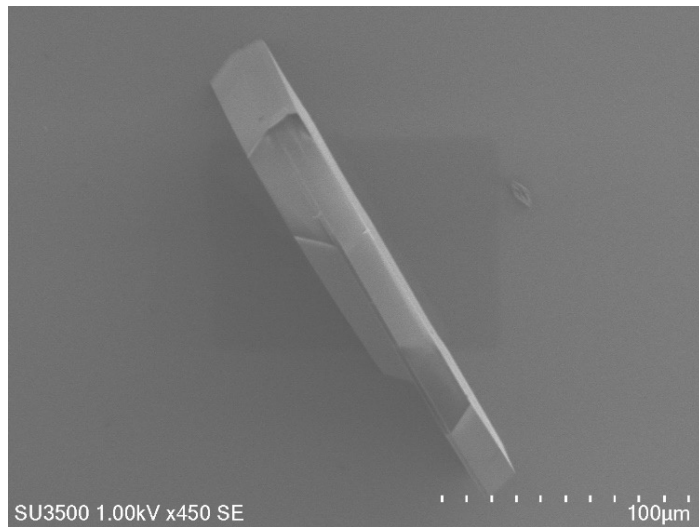
Tilt: 15°



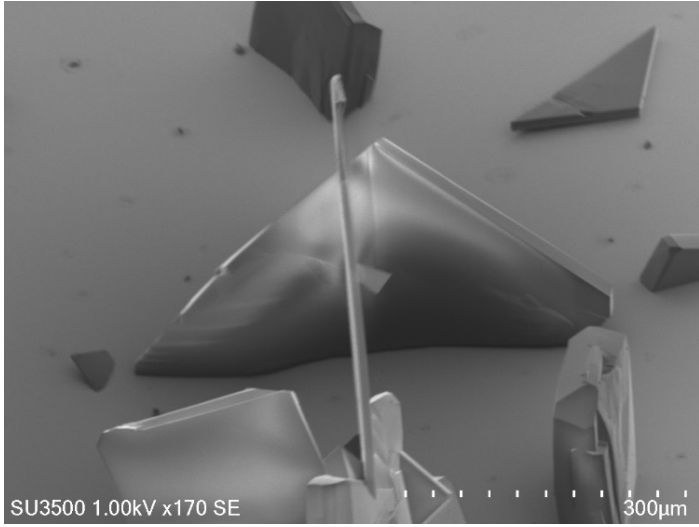
( $111$ )



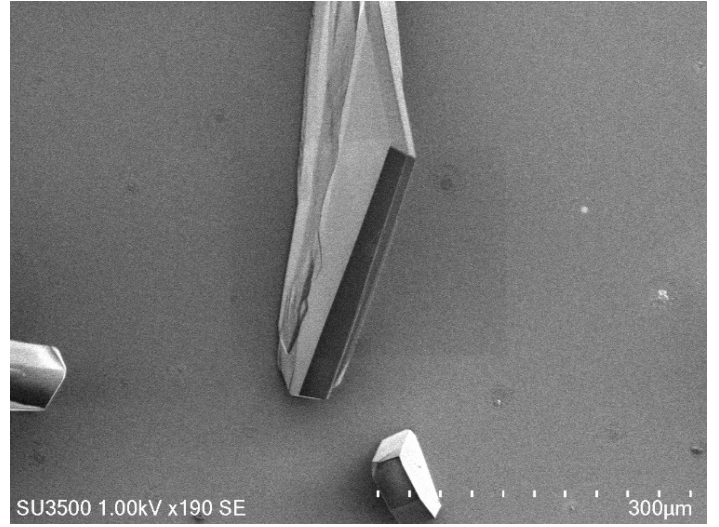
Tilt: 30°



(110)



Tilt: 10°



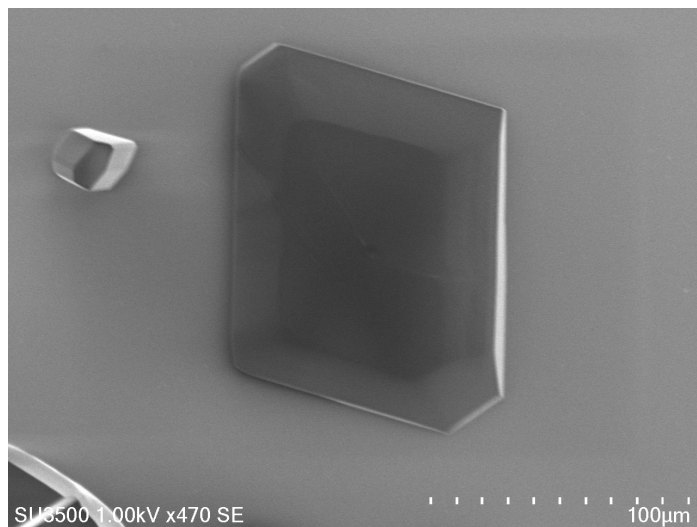
## Maleic Anhydride Reacted Crystals

Left: Image of crystal with tilted stage used for indexing. The crystal is  $X^\circ$  off of parallel to the frame.

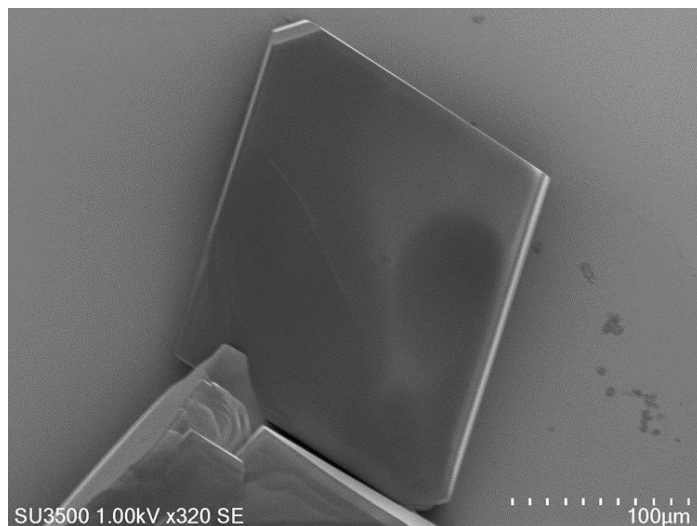
Right: Image of crystal when EDS was taken and no stage tilt.

(001)

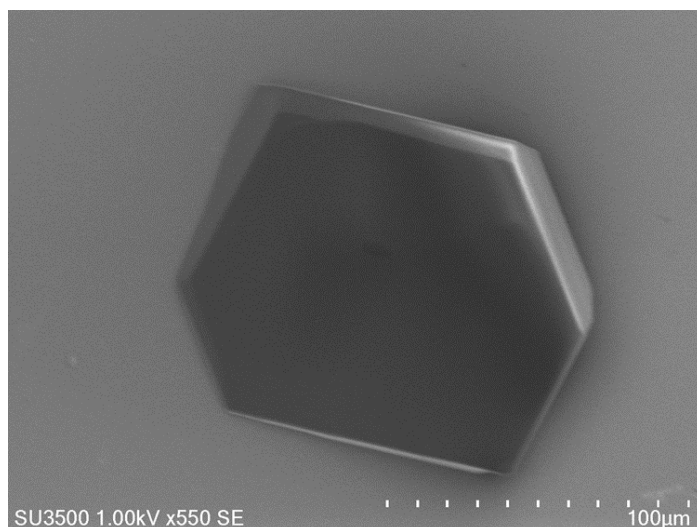
0h



O%:  $1.32 \pm 0.46$

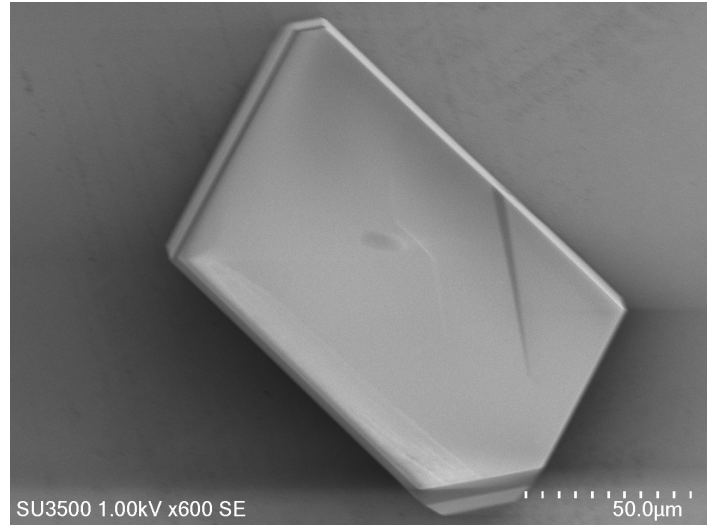


O%:  $0.68 \pm 0.45$

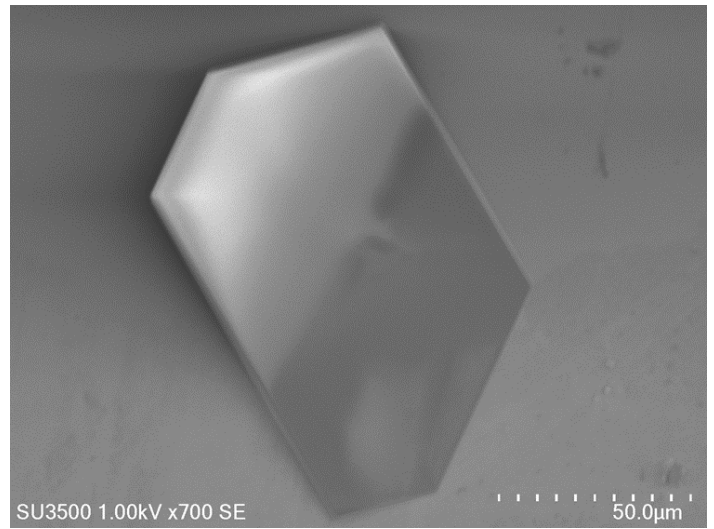


O%:  $0.66 \pm 0.36$

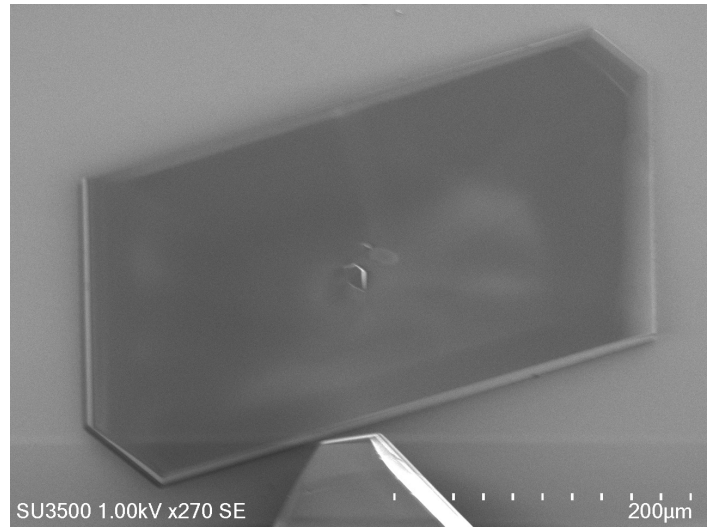
4h



O%:  $0.73 \pm 0.47$

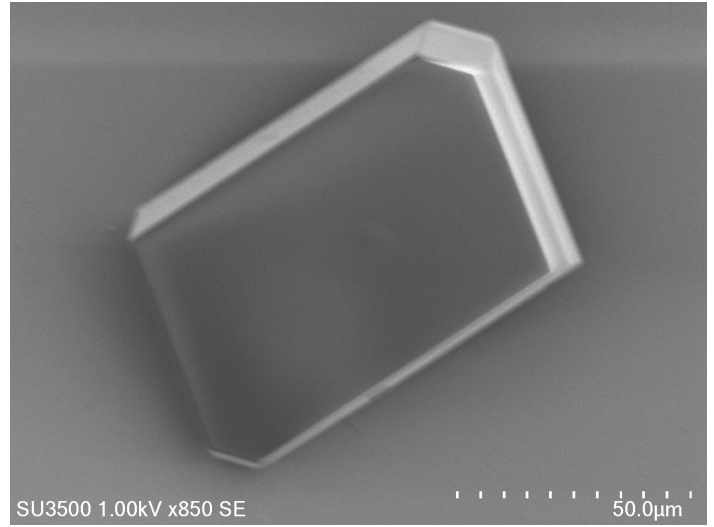


O%:  $0.48 \pm 0.42$



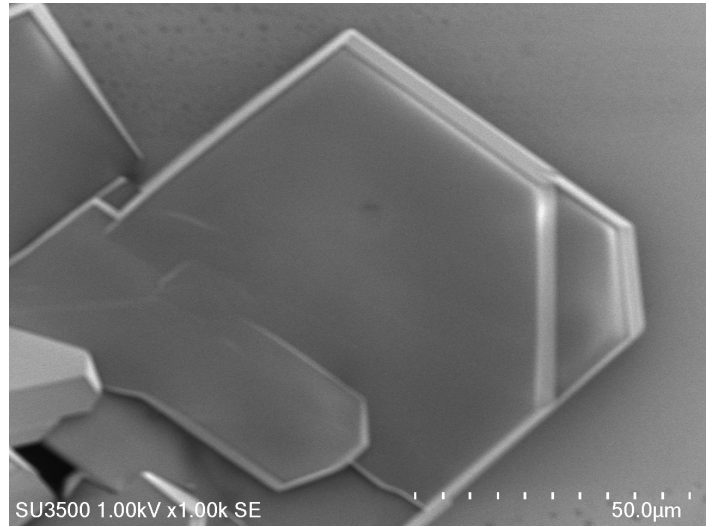
O%:  $0.38 \pm 0.34$

4h

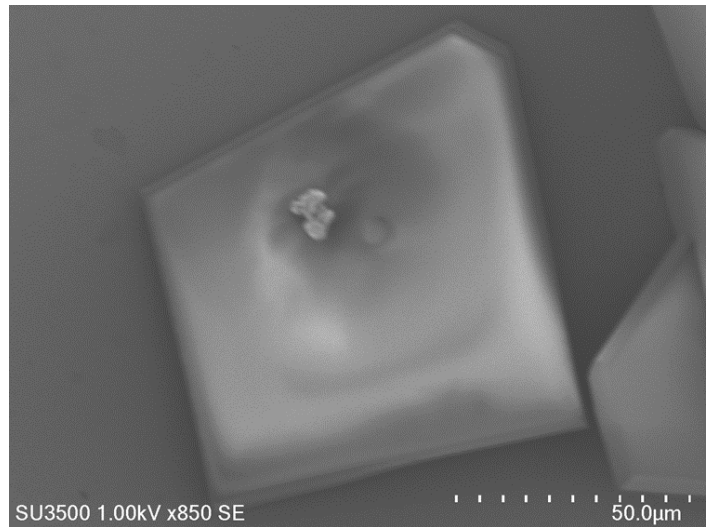


O%:  $0.68 \pm 0.50$

8h

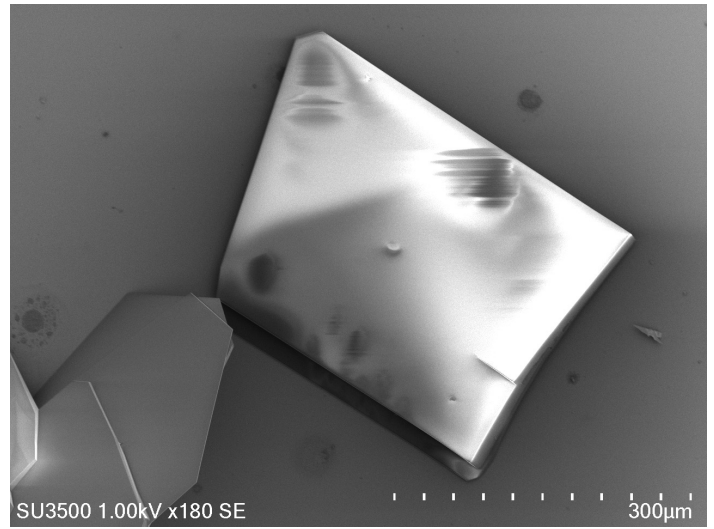


O%:  $1.24 \pm 0.45$

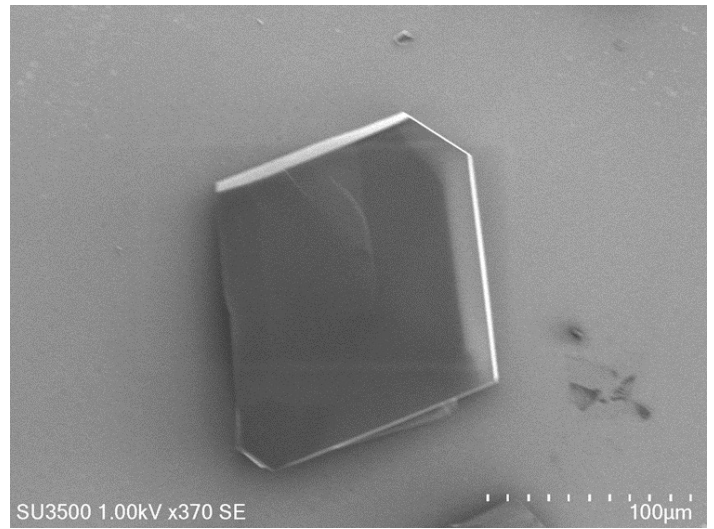


O%:  $0.63 \pm 0.31$

8h

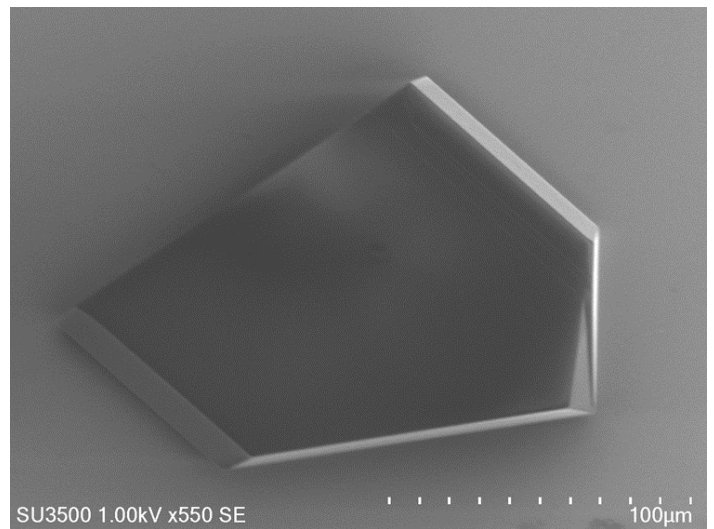


O%:  $1.65 \pm 0.54$



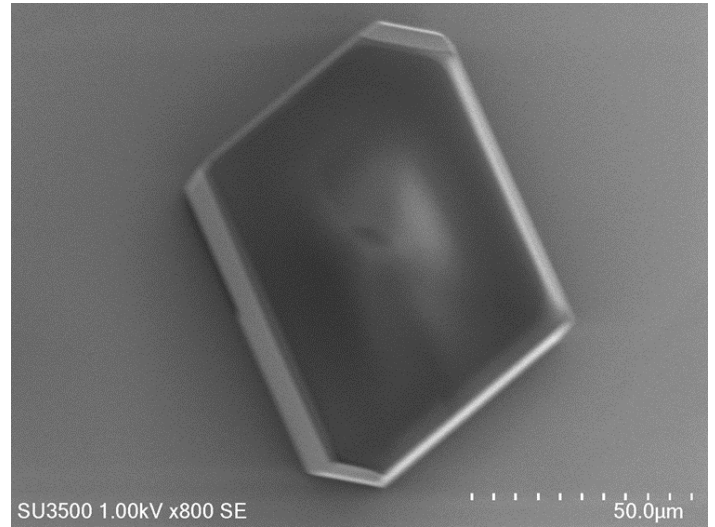
O%:  $1.50 \pm 0.46$

12h

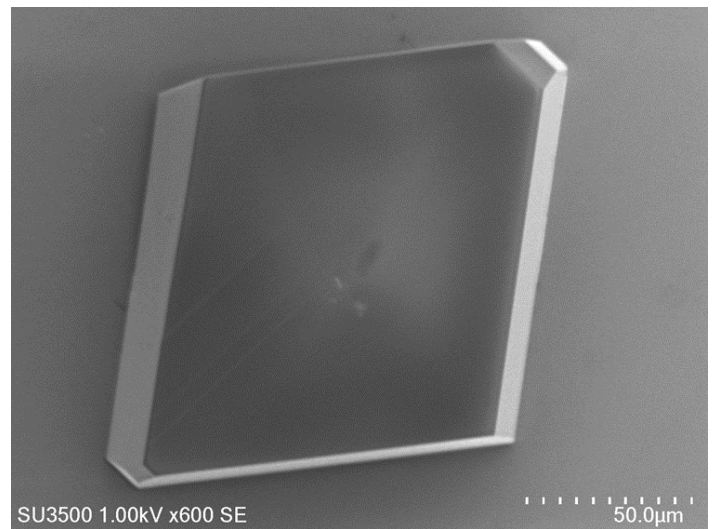


O%:  $1.88 \pm 0.62$

12h

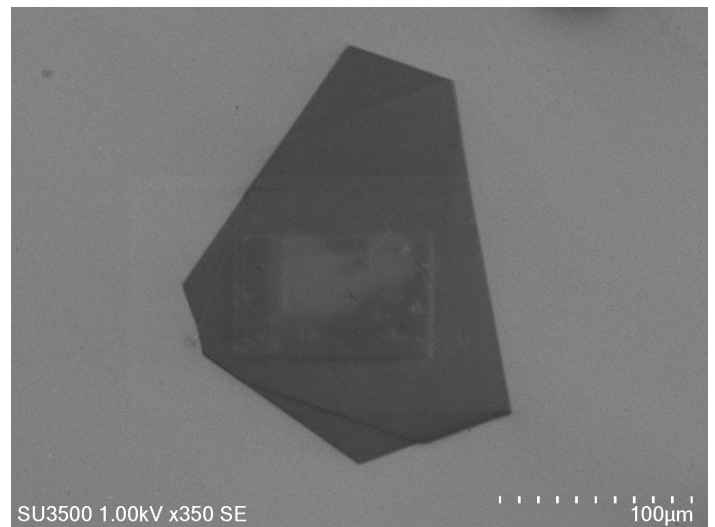


O%:  $1.83 \pm 0.66$



O%:  $0.91 \pm 0.46$

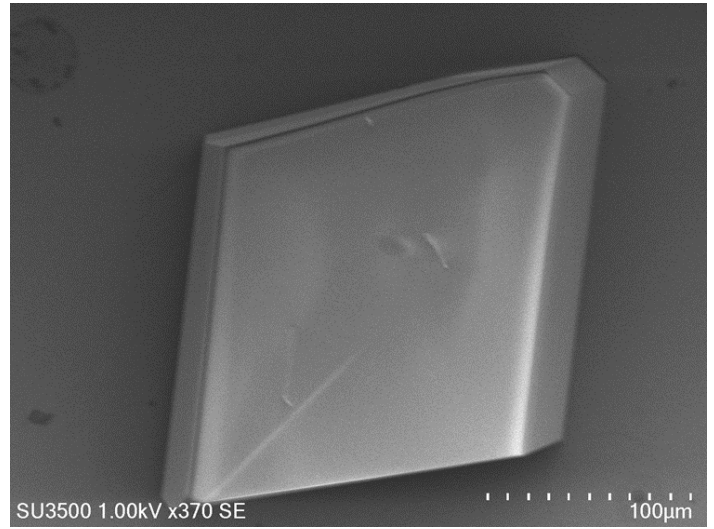
16h



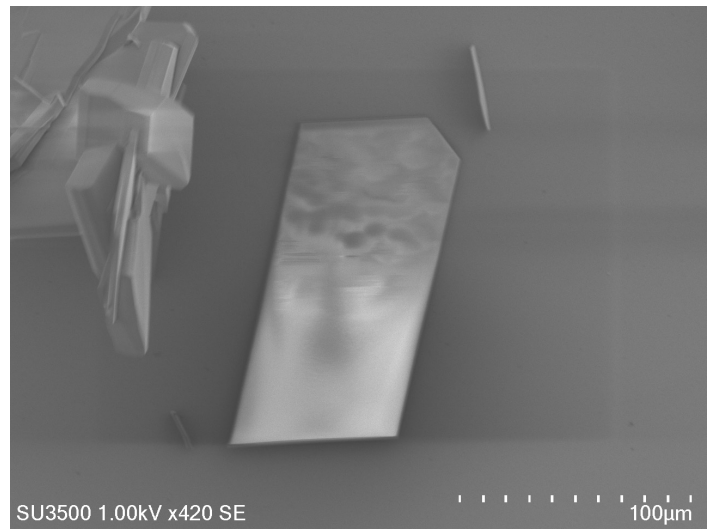
O%:  $0.90 \pm 0.34$



16h



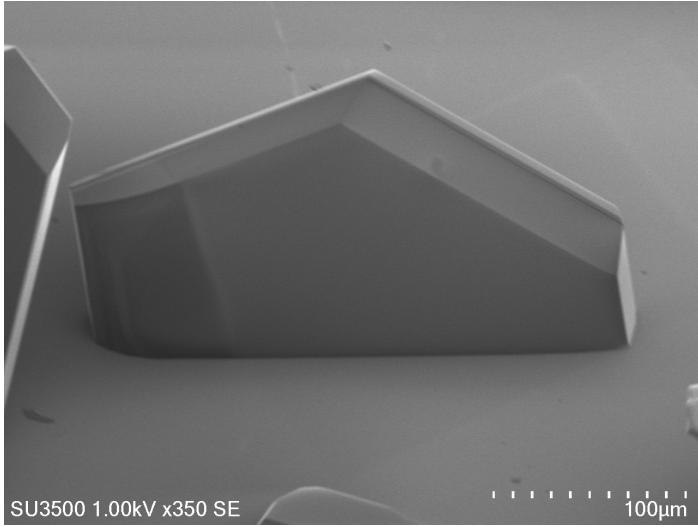
O%:  $1.87 \pm 0.74$



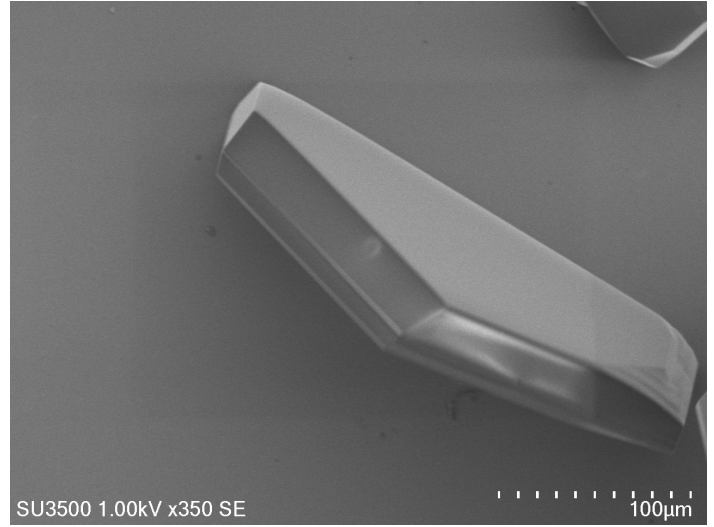
O%:  $2.90 \pm 0.62$

(100)

0h

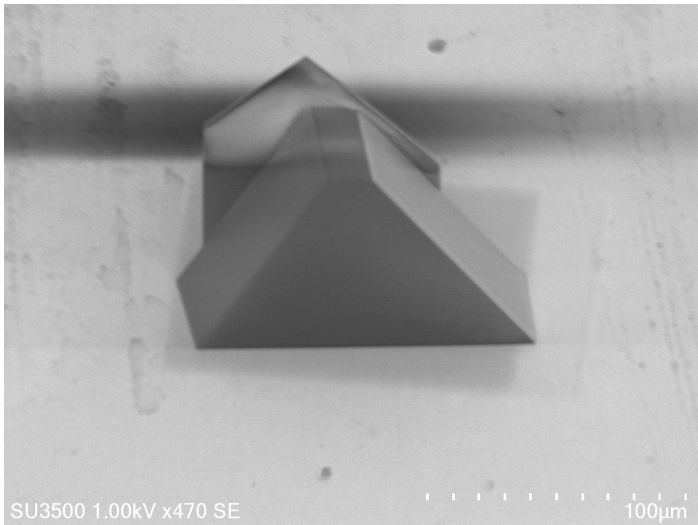


Tilt: 30°

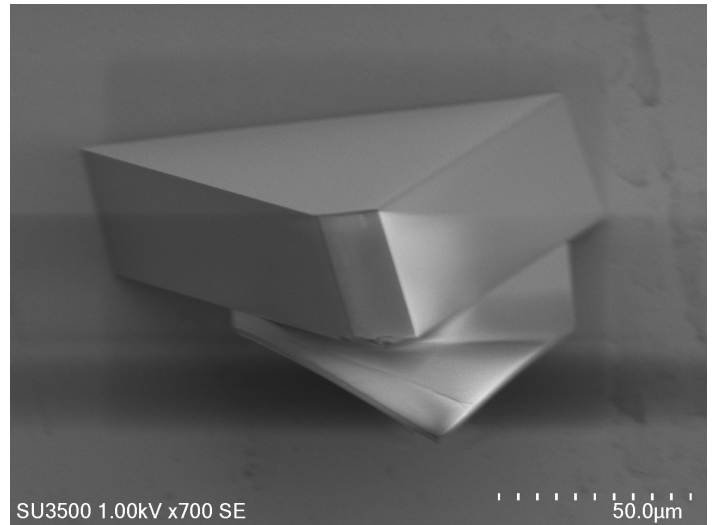


O%:  $1.27 \pm 0.53$

4h

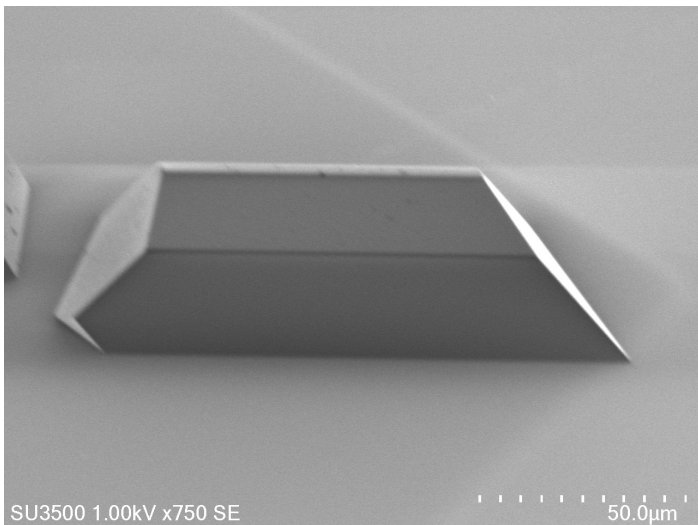


Tilt: 30°

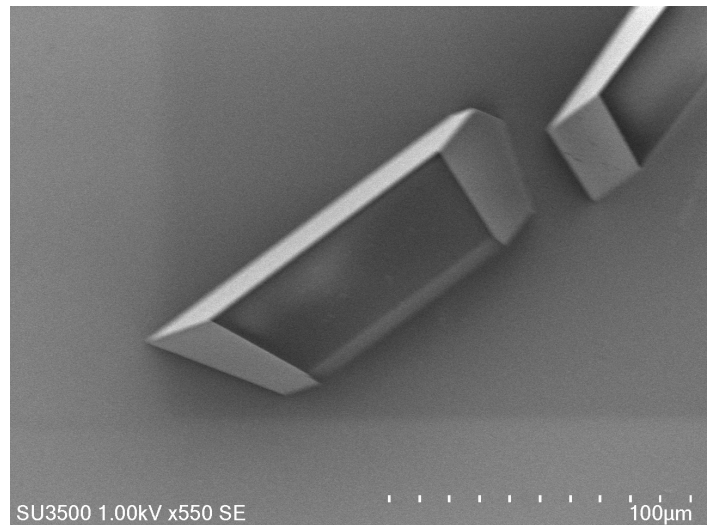


O%:  $1.90 \pm 1.22$

12h

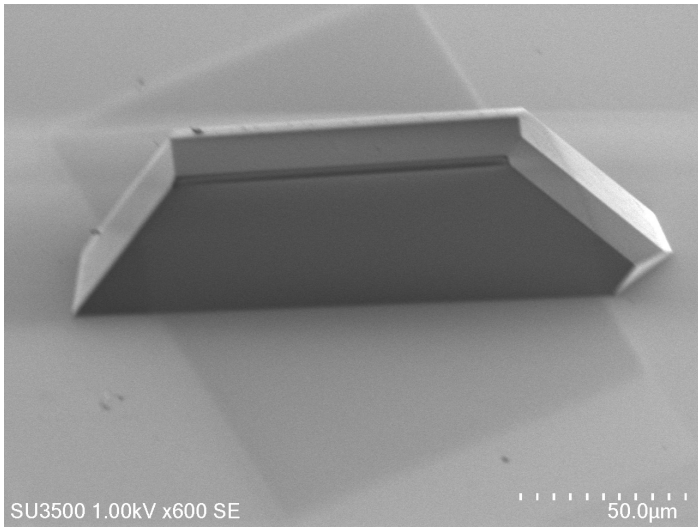


Tilt: 40°

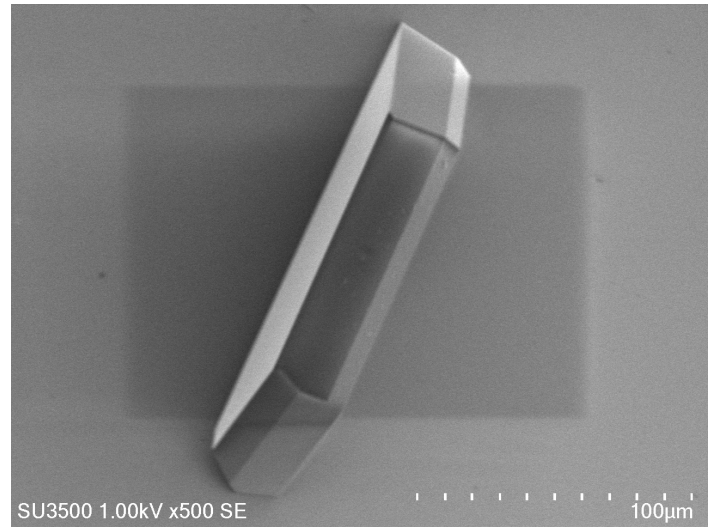


O%:  $1.28 \pm 0.85$

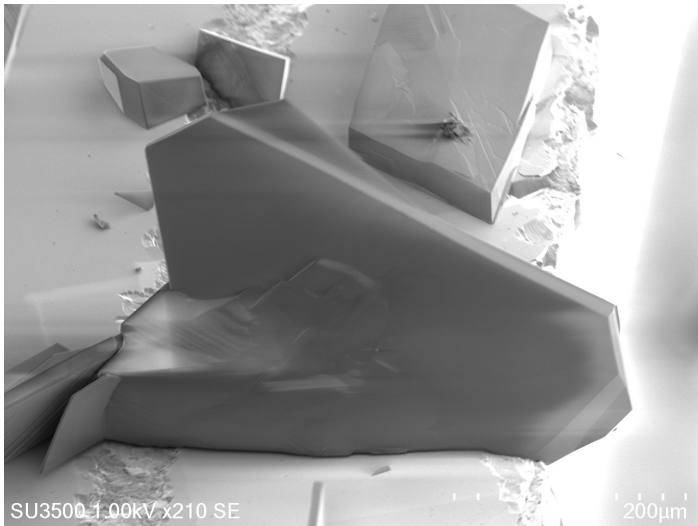
12h



Tilt: 40°

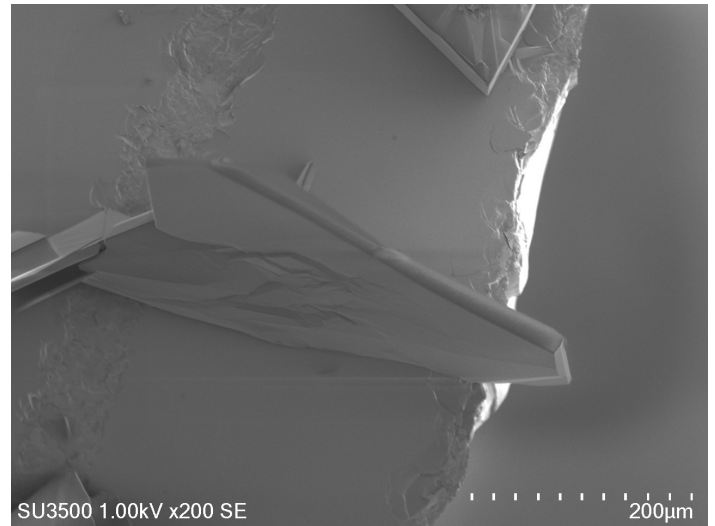


O%:  $1.97 \pm 0.54$



Tilt: 30°

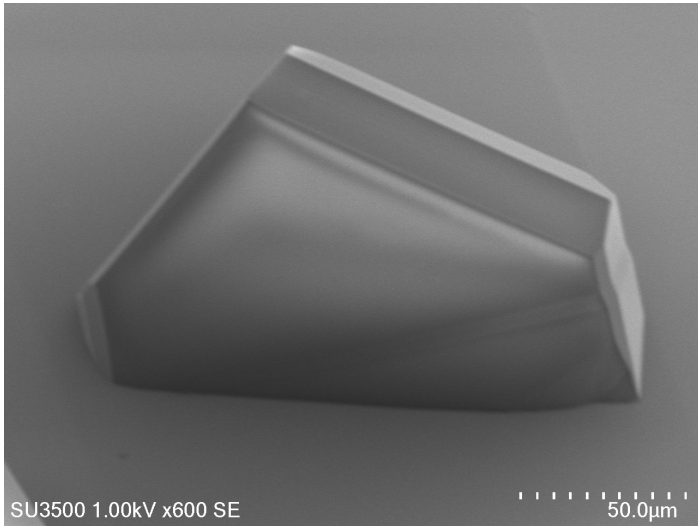
16h



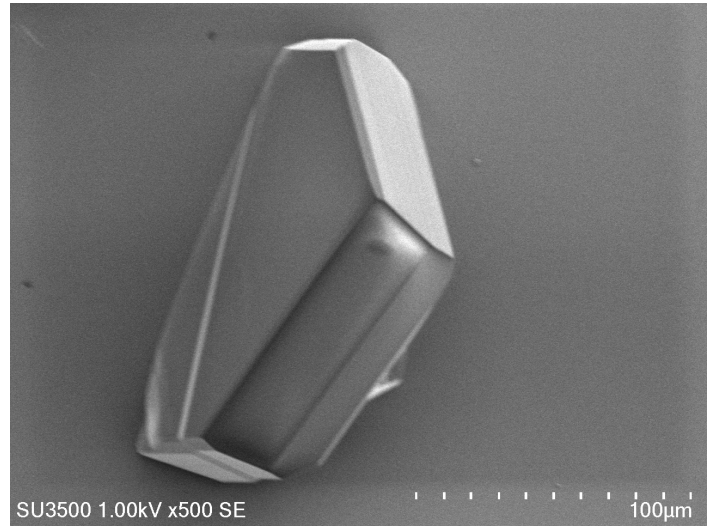
O%:  $4.18 \pm 1.08$

(110)

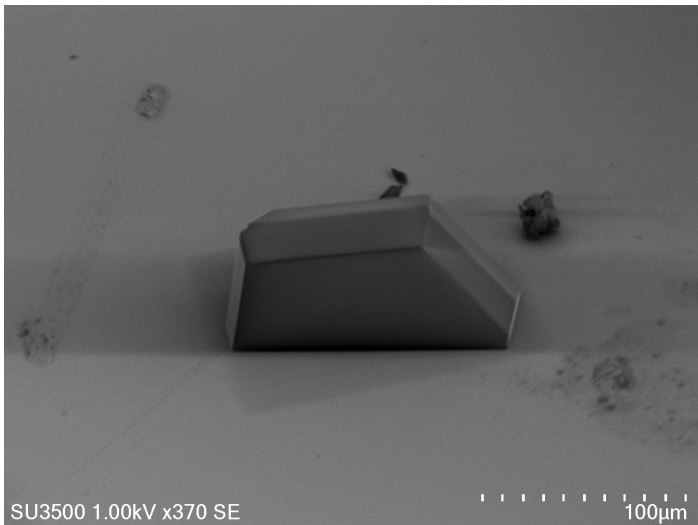
0h



Tilt: 30°

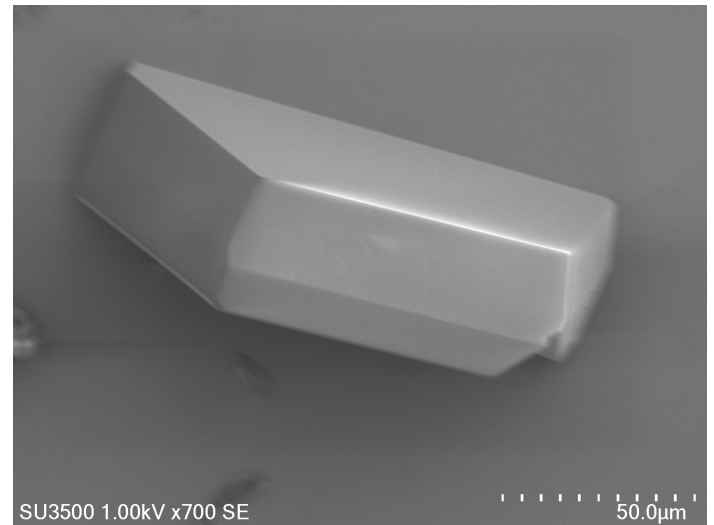


O%:  $1.75 \pm 0.59$

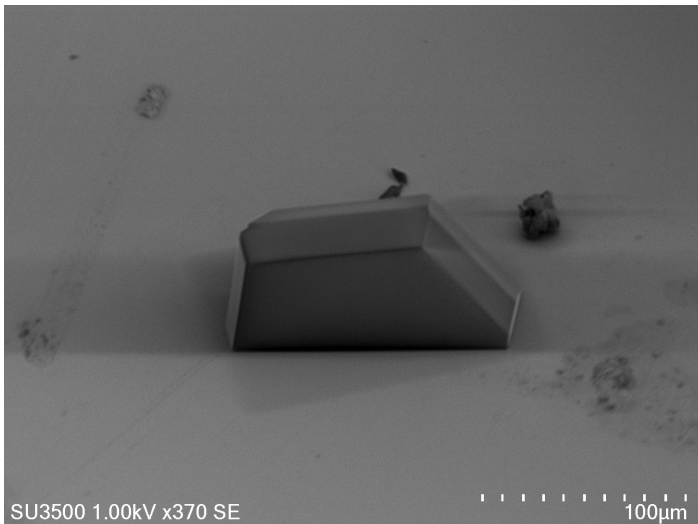


Tilt: 30°

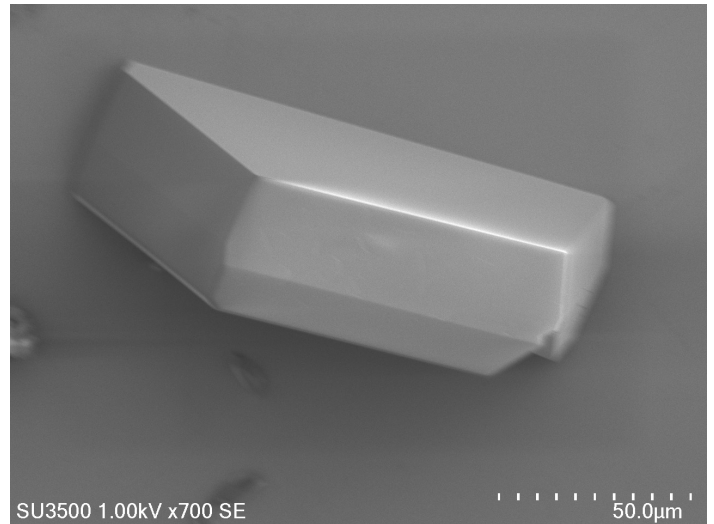
4h



O%:  $1.48 \pm 0.61$

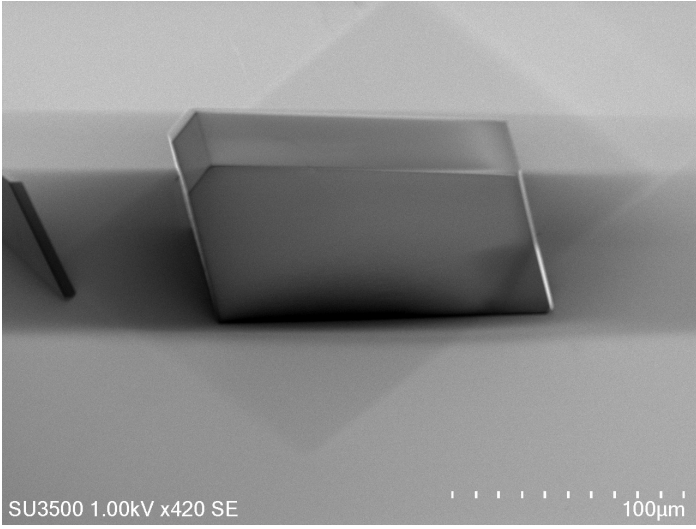


Tilt: 20°

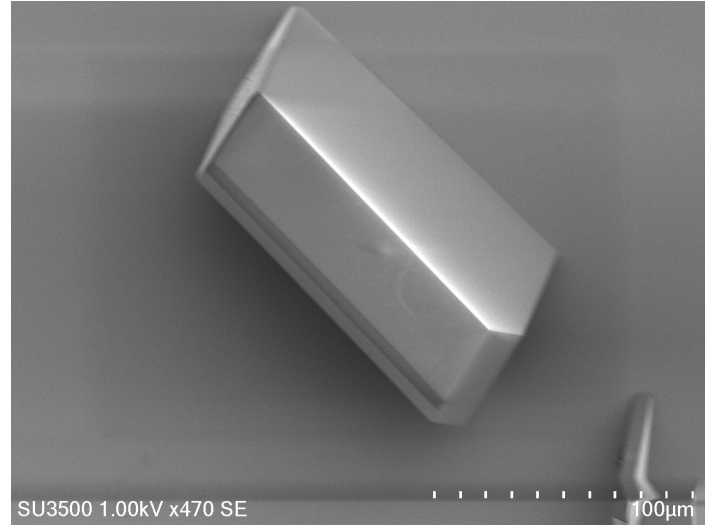


O%:  $1.69 \pm 0.47$

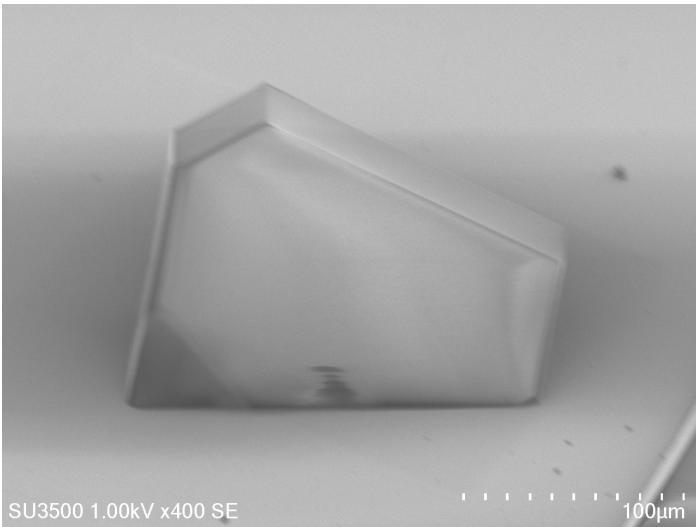
4h



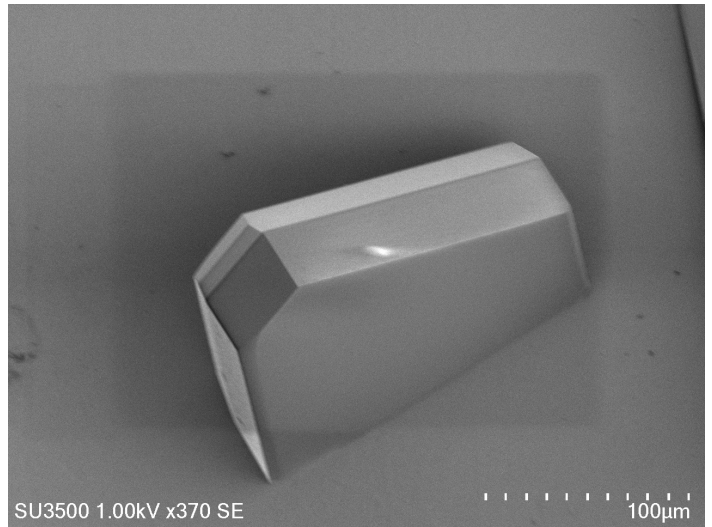
Tilt: 30°



O%:  $1.84 \pm 0.60$

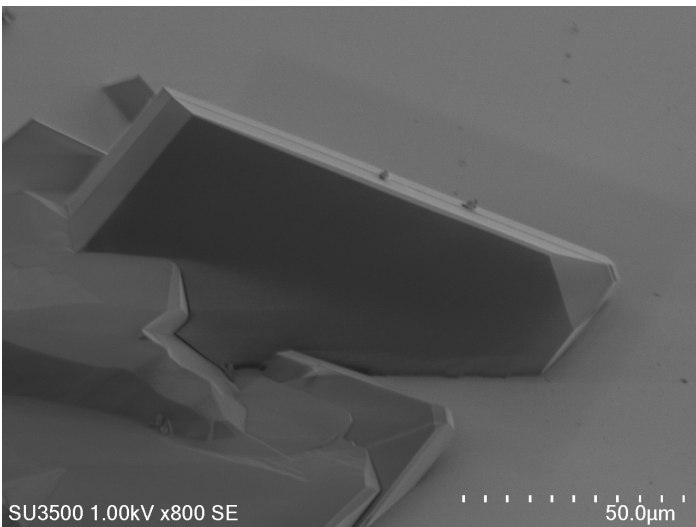


Tilt: 10°

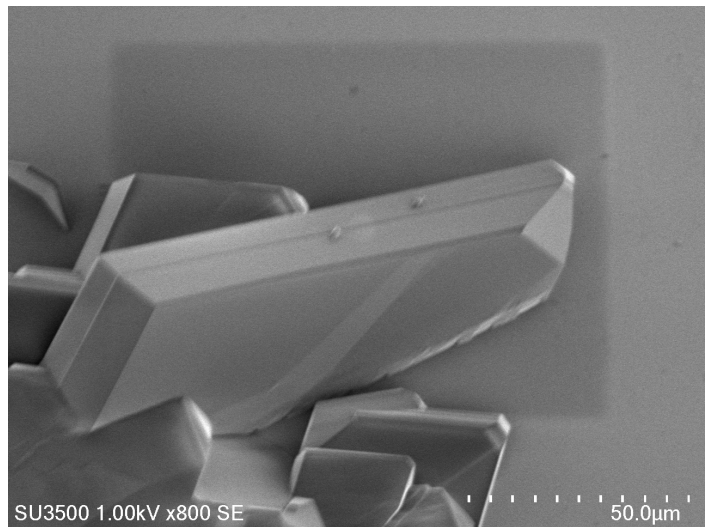


O%:  $2.10 \pm 0.53$

8h

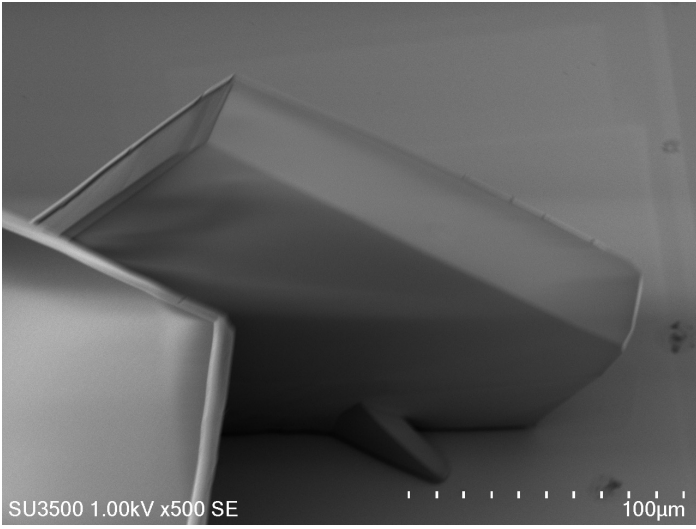


Tilt: 30°

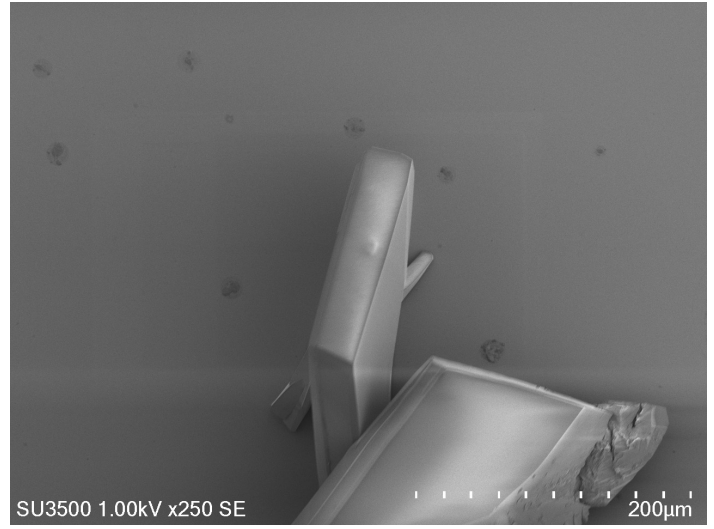


O%:  $3.51 \pm 0.78$

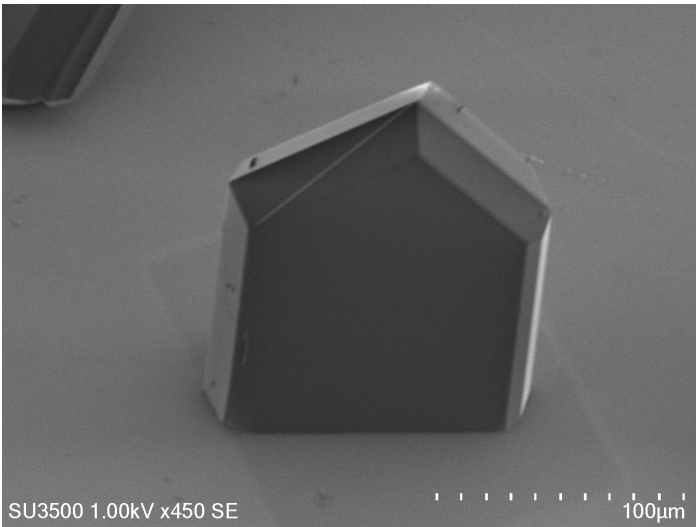
8h



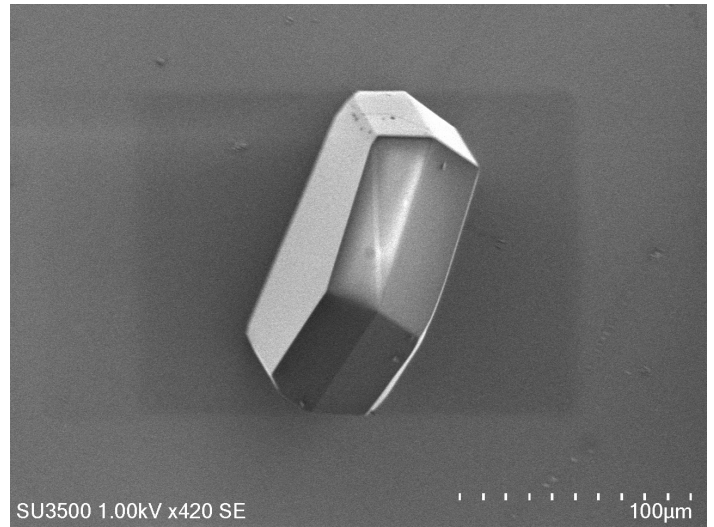
Tilt: 40°



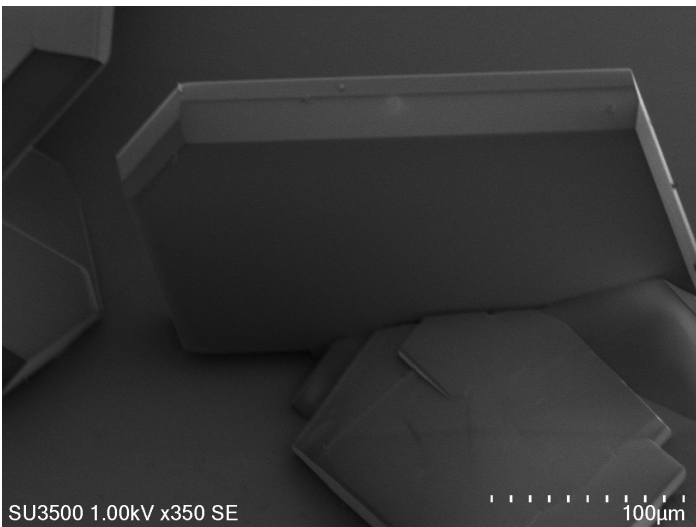
O%:  $3.95 \pm 0.93$



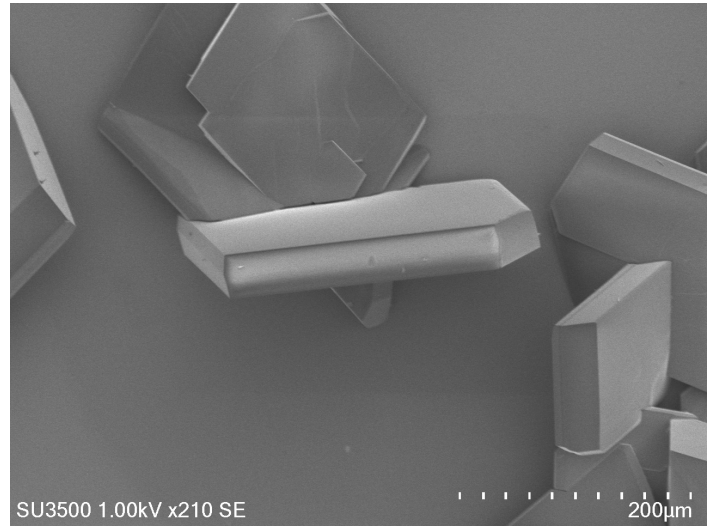
Tilt: 40°



O%:  $4.18 \pm 1.11$

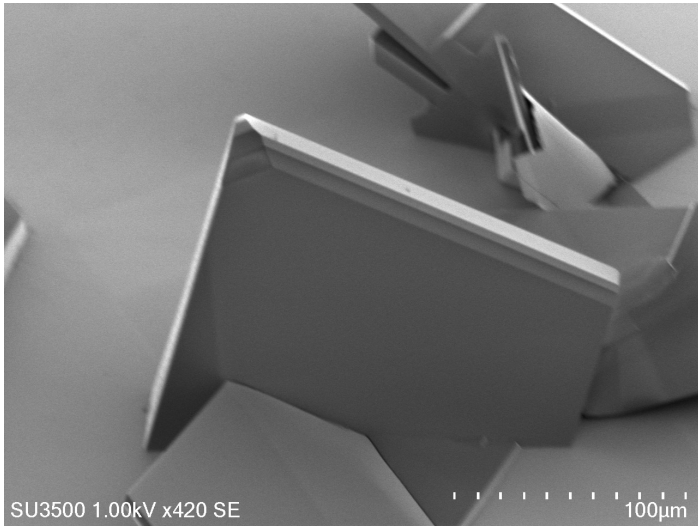


Tilt: 50°

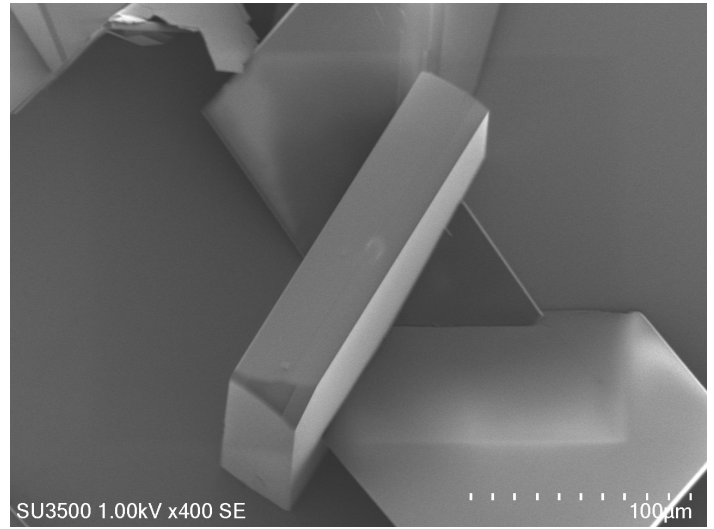


O%:  $4.14 \pm 1.29$

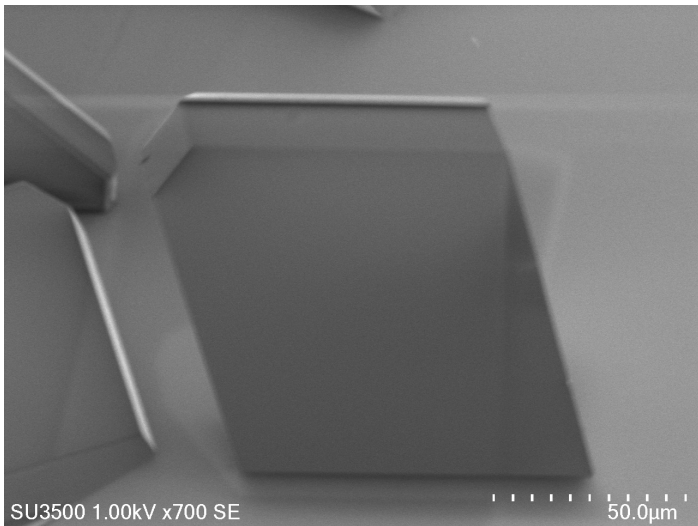
12h



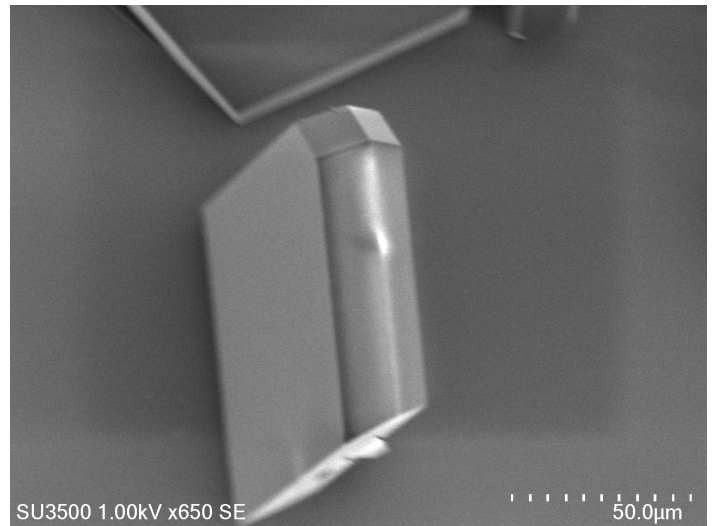
Tilt: 40°



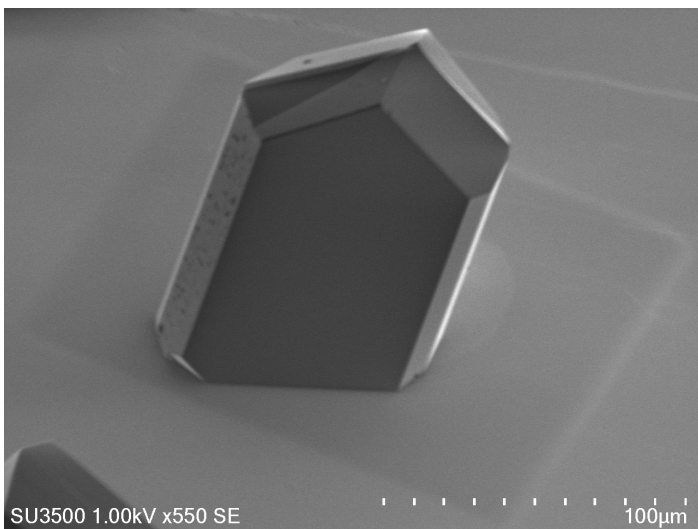
O%:  $3.17 \pm 0.72$



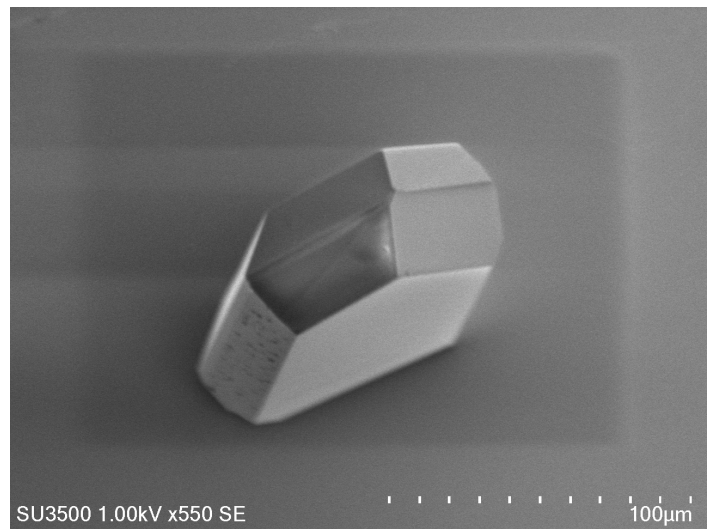
Tilt: 30°



O%:  $1.97 \pm 0.90$

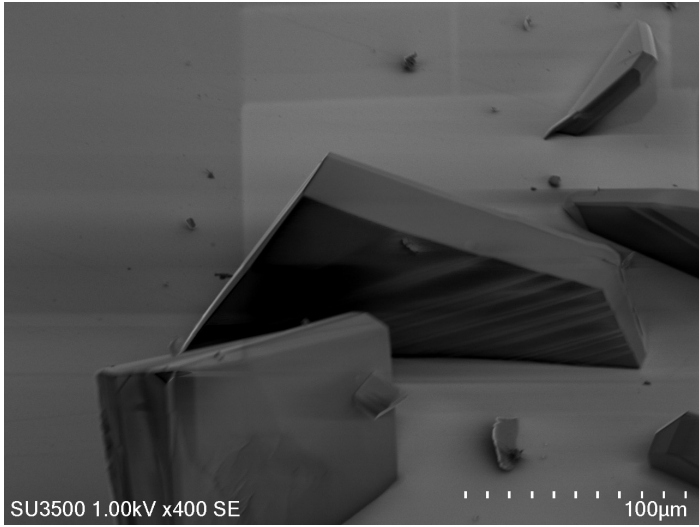


Tilt: 40°

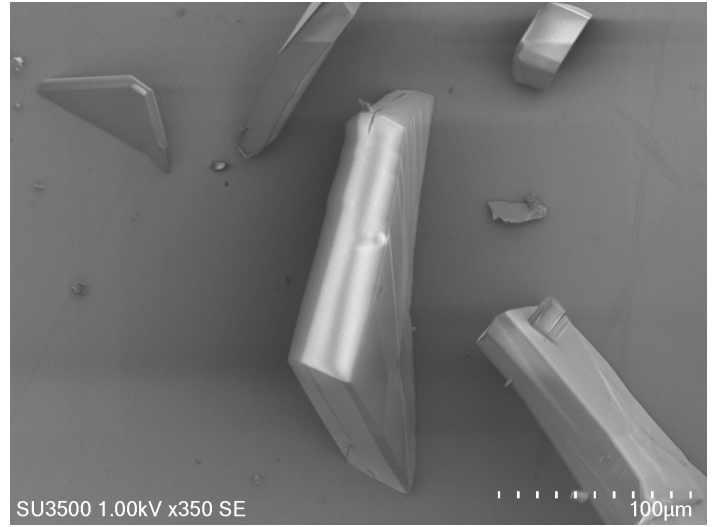


O%:  $3.69 \pm 1.12$

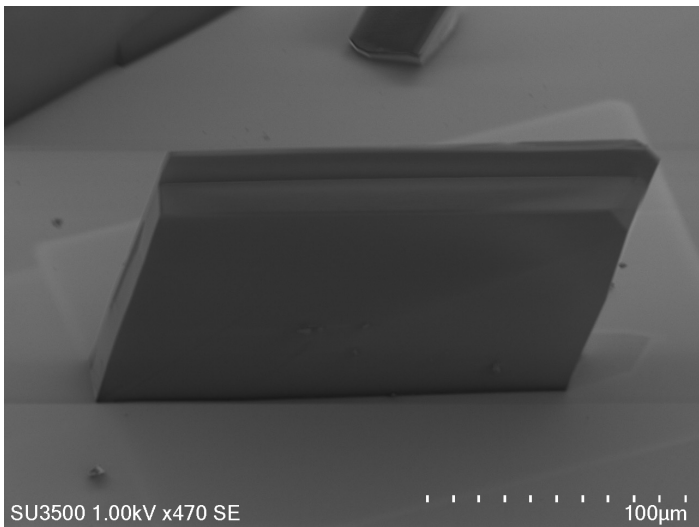
16h



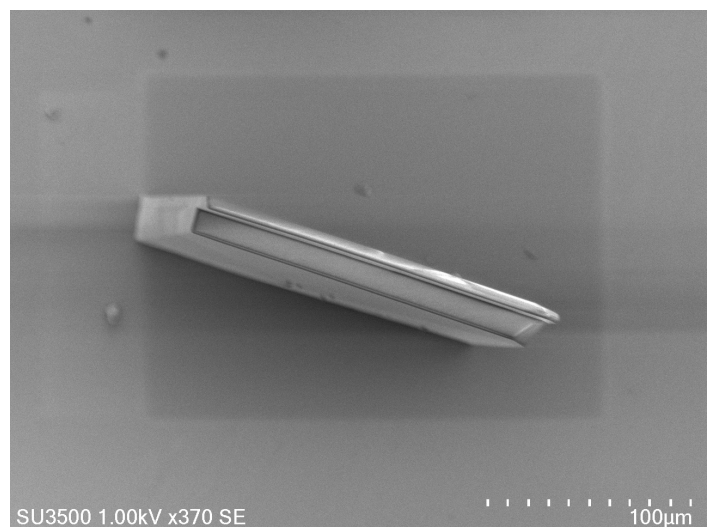
Tilt: 30°



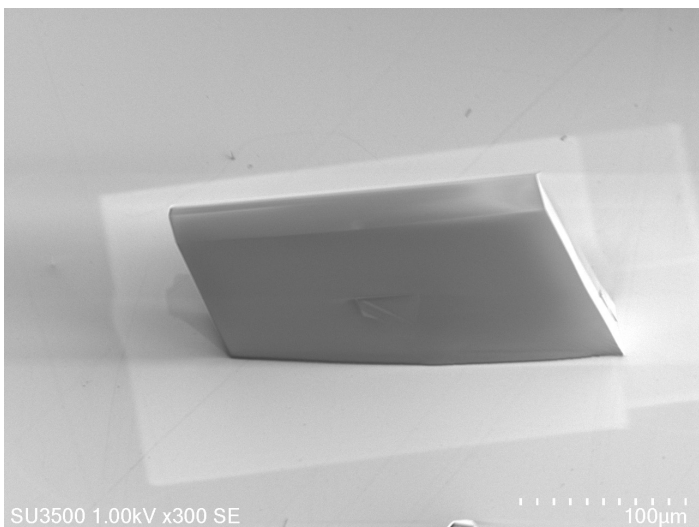
O%:  $3.93 \pm 1.01$



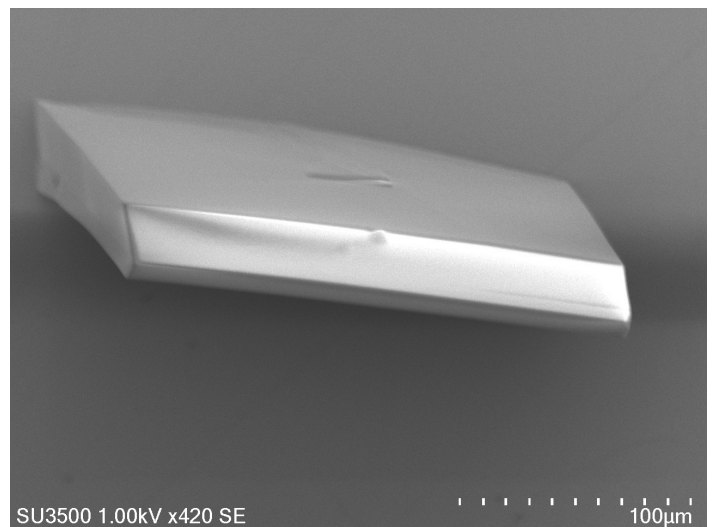
Tilt: 40°



O%:  $3.88 \pm 1.90$



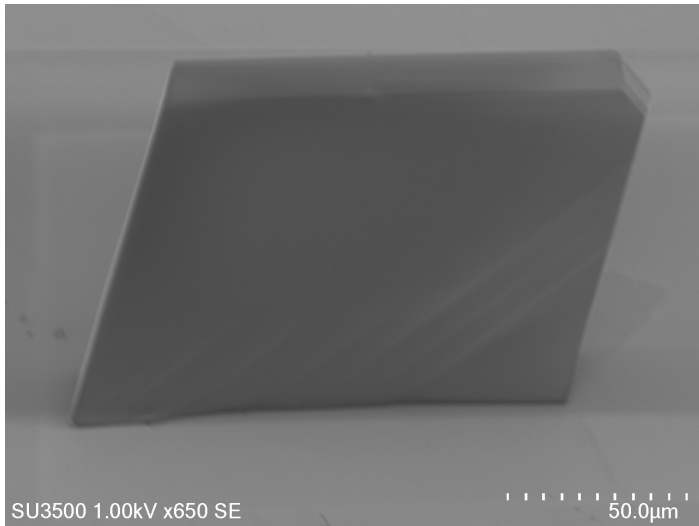
Tilt: 40°



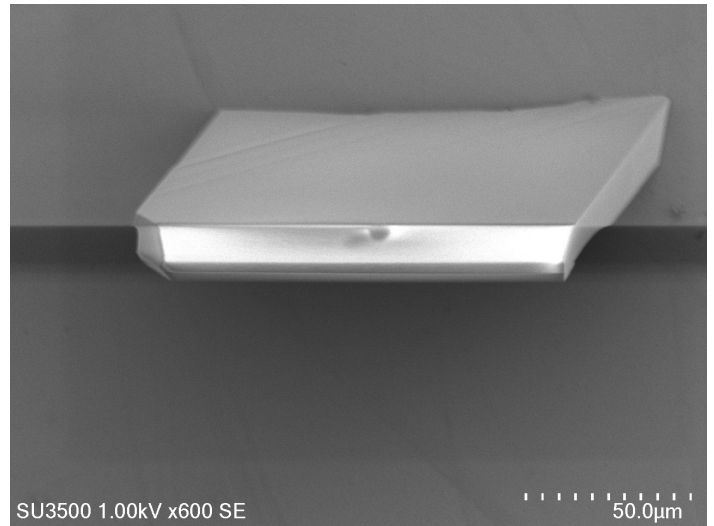
O%:  $3.29 \pm 1.01$



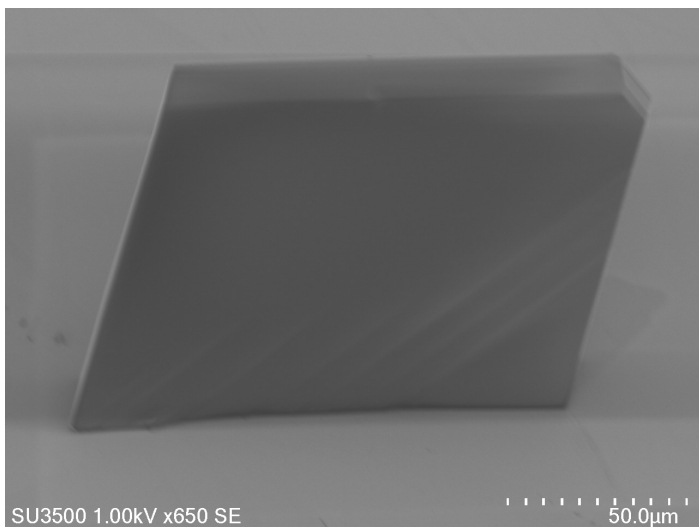
16h



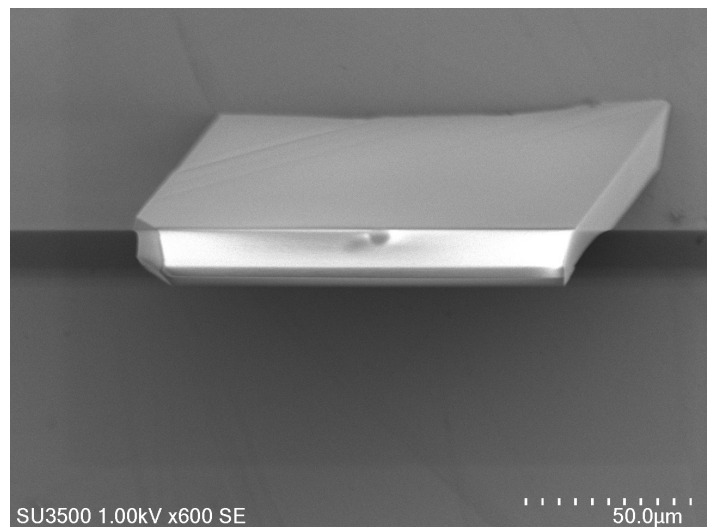
Tilt: 30°



O%:  $2.97 \pm 0.99$



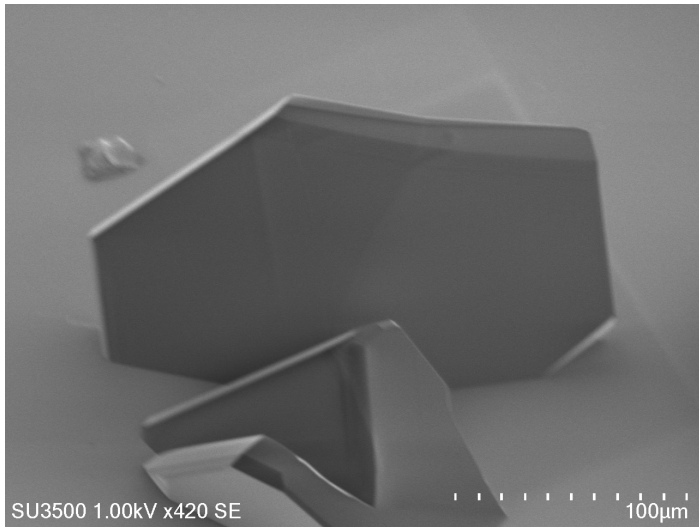
Tilt: 40°



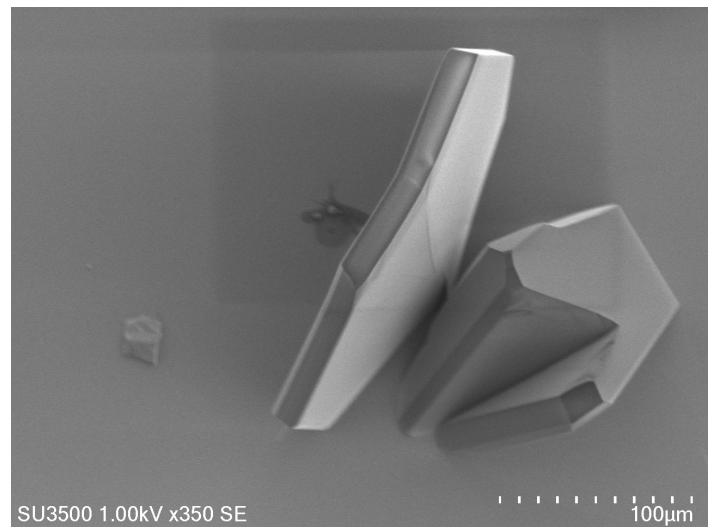
O%:  $2.51 \pm 0.85$

(110)

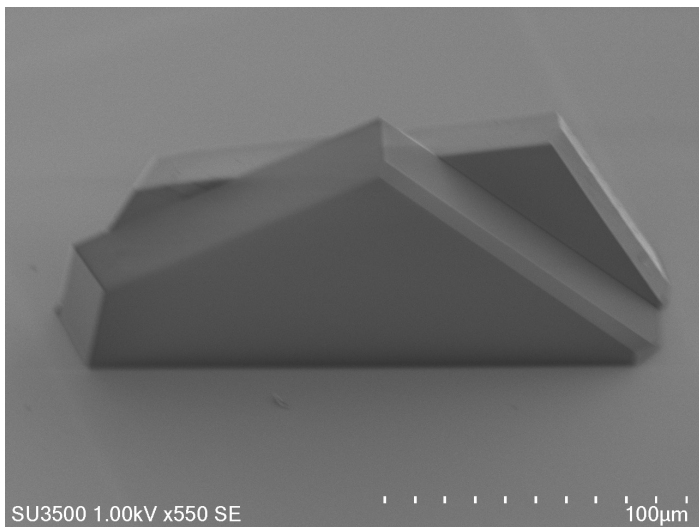
0h



Tilt: 40°

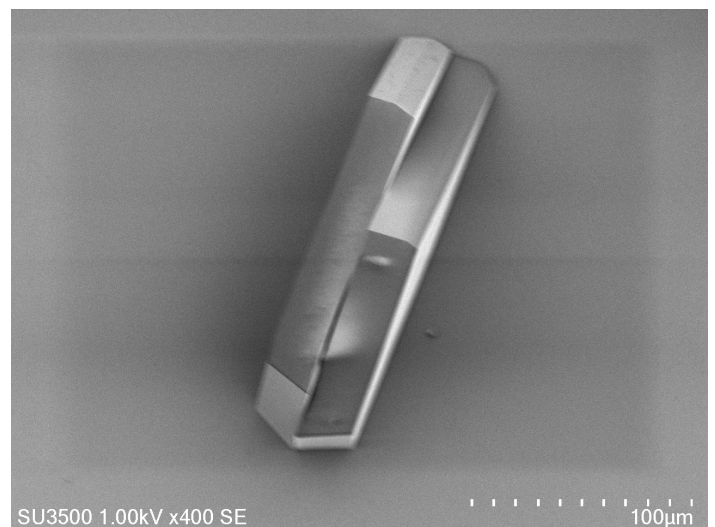


O%:  $1.31 \pm 0.60$

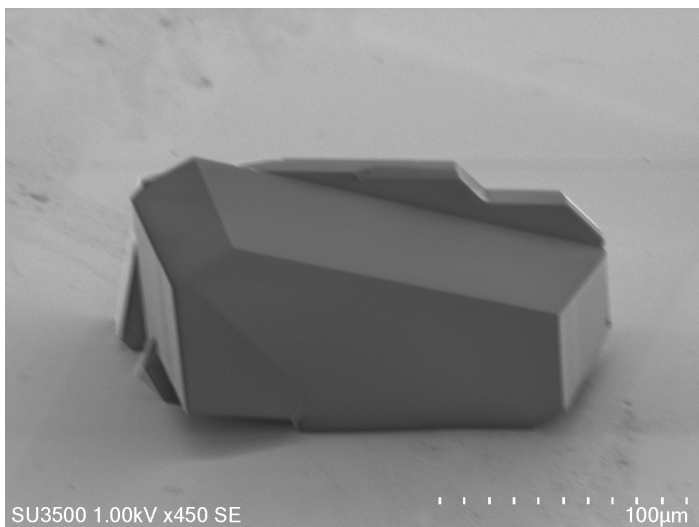


Tilt: 40°

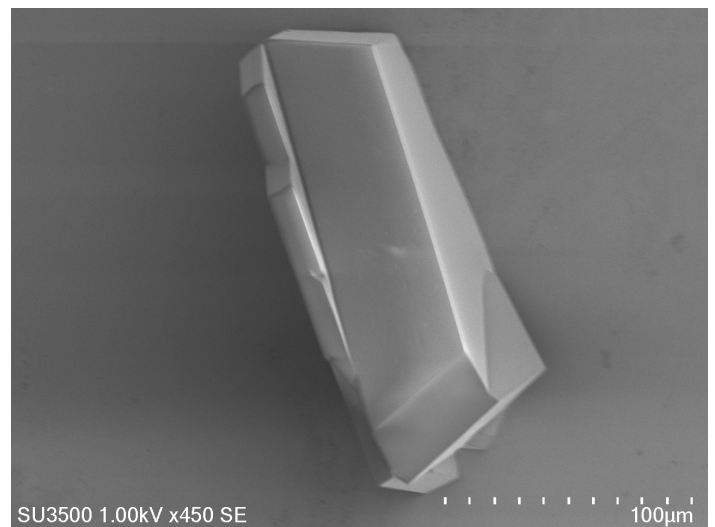
4h



O%:  $1.93 \pm 0.79$

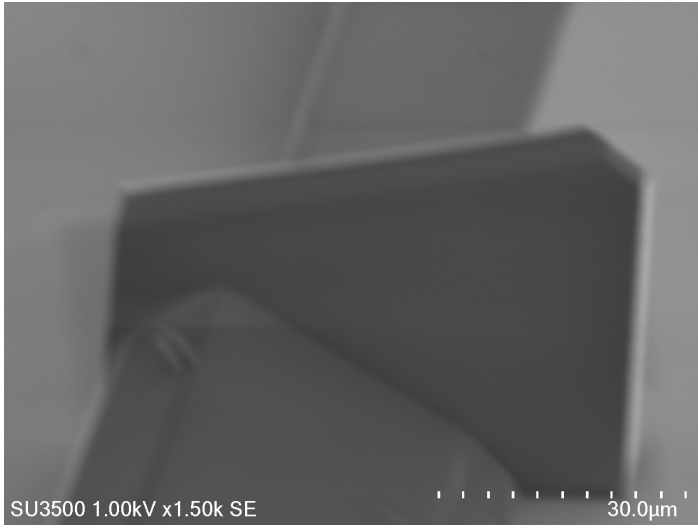


Tilt: 40°

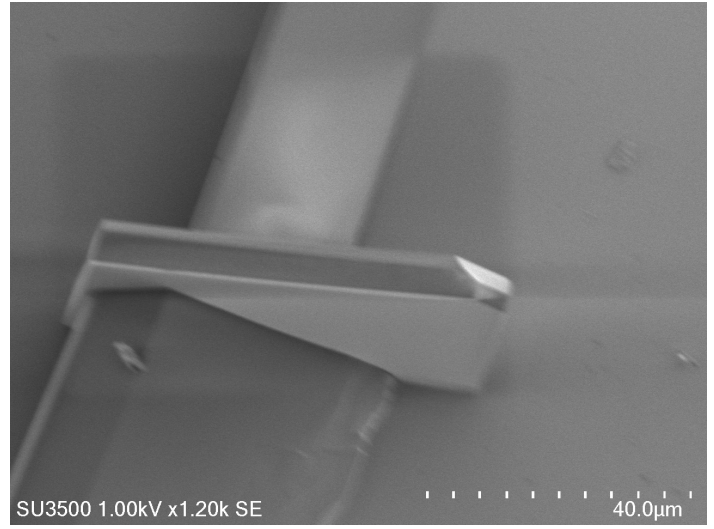


O%:  $2.04 \pm 0.67$

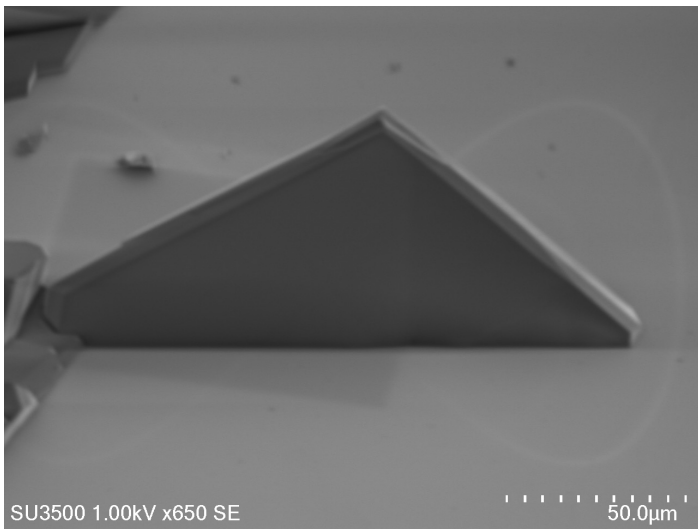
8h



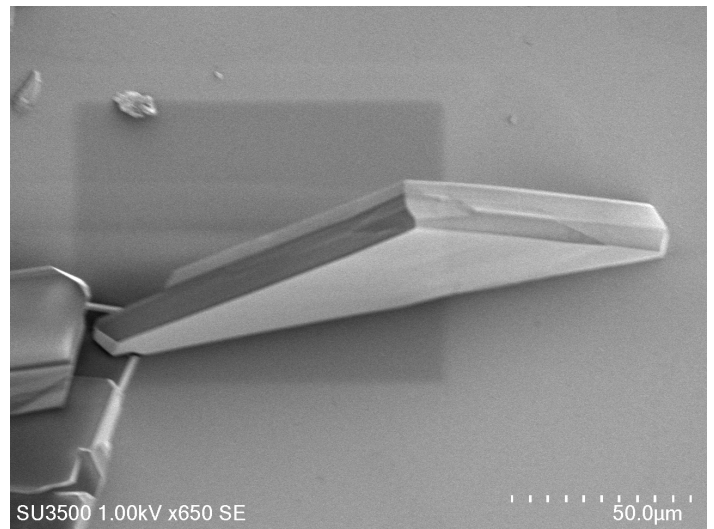
Tilt: 30°



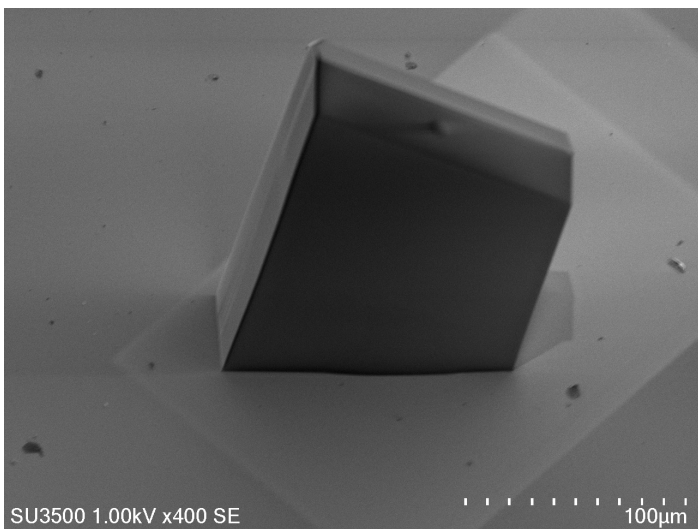
O%:  $2.73 \pm 0.96$



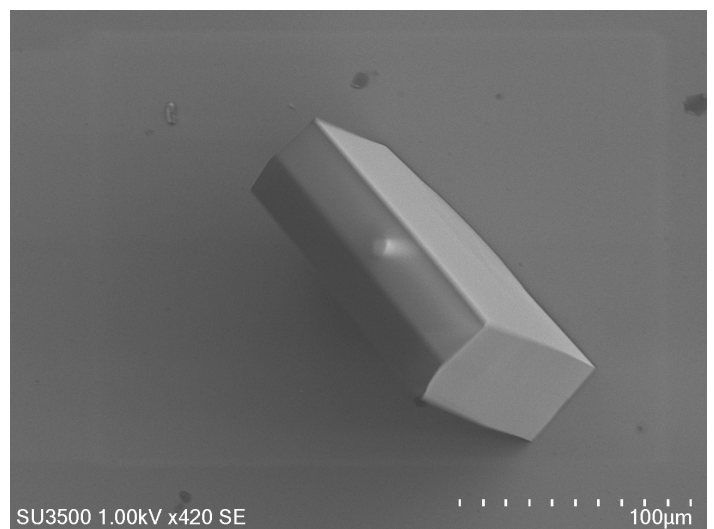
Tilt: 30°



O%:  $1.94 \pm 0.54$

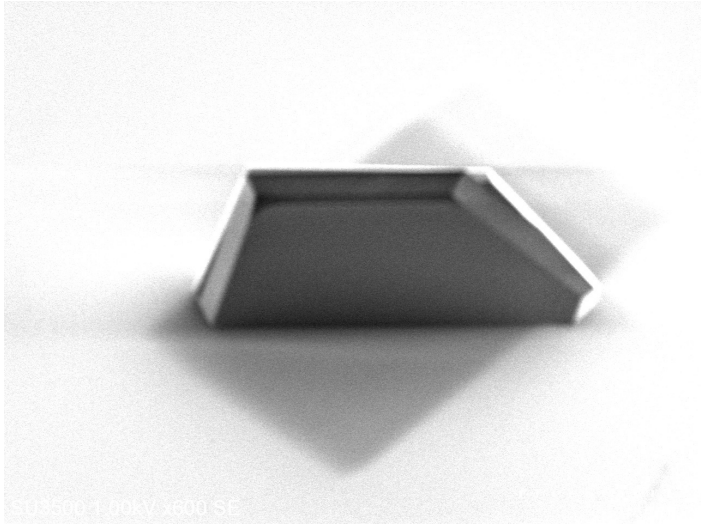


Tilt: 50°

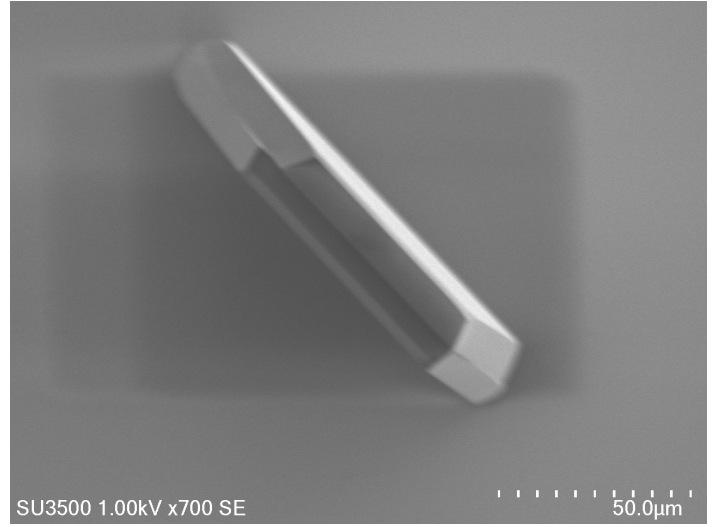


O%:  $2.30 \pm 0.72$

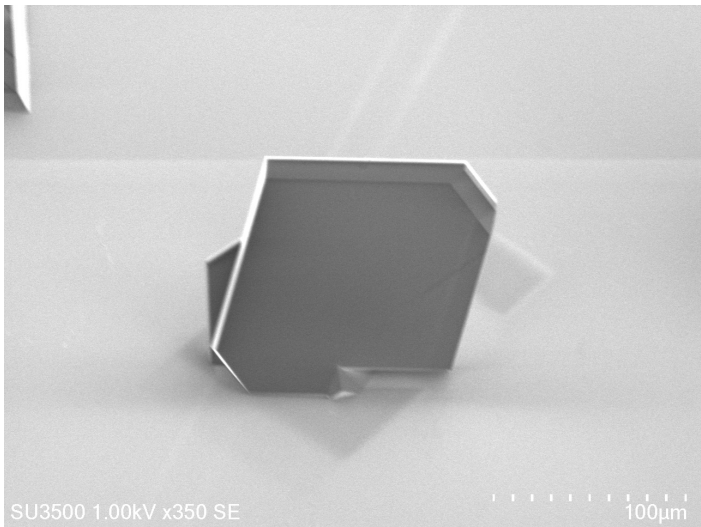
12h



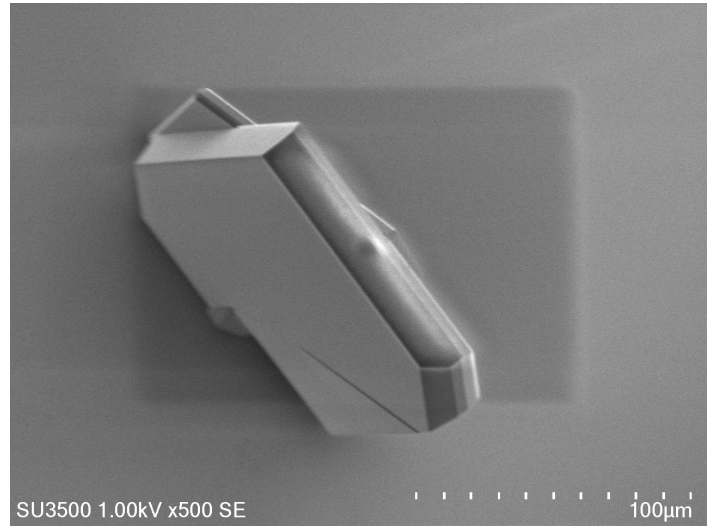
Tilt: 50°



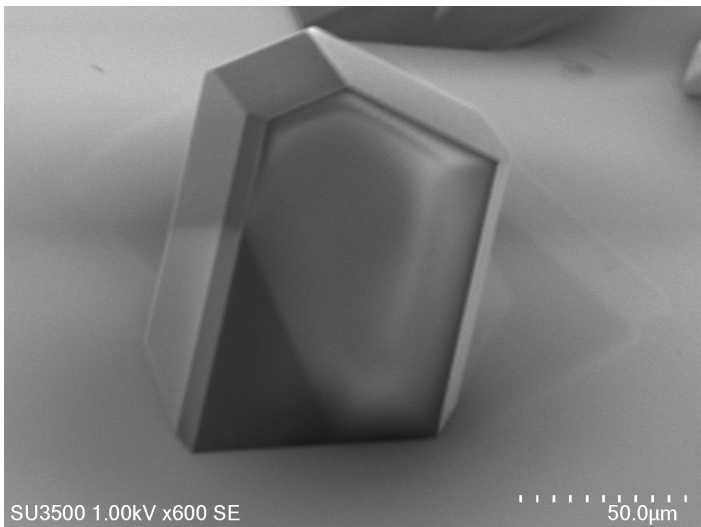
O%:  $4.62 \pm 1.34$



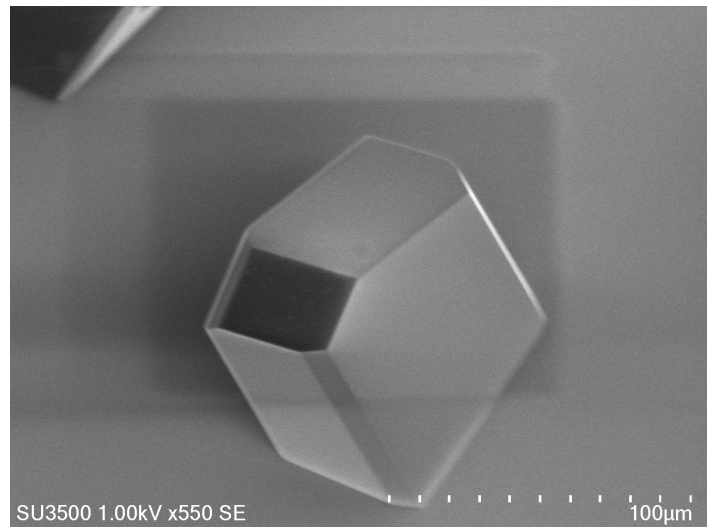
Tilt: 30°



O%:  $3.15 \pm 0.96$

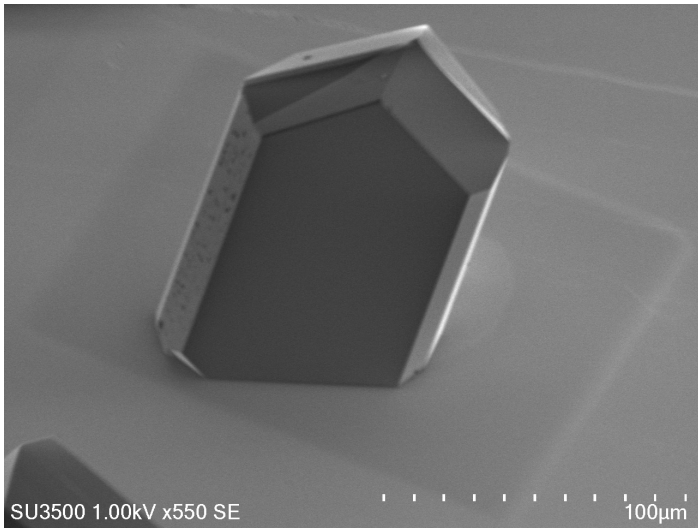


Tilt: 20°

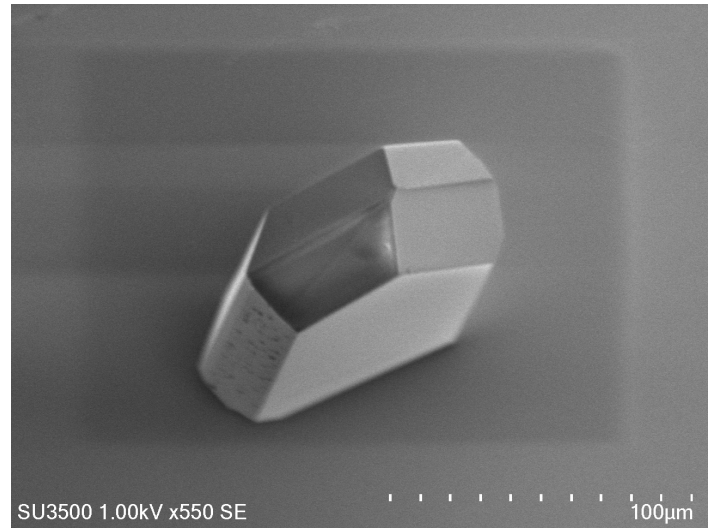


O%:  $3.06 \pm 0.74$

12h

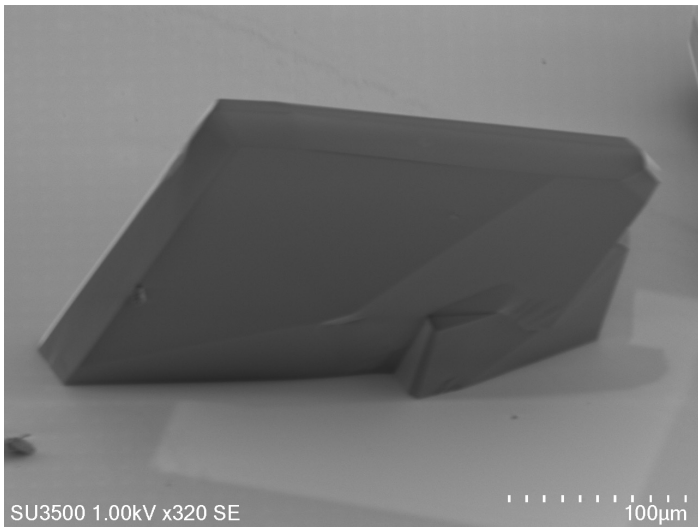


Tilt: 40°

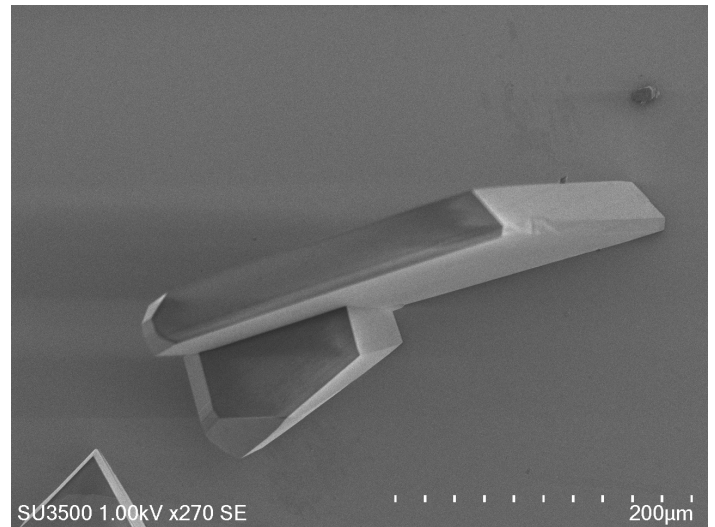


O%:  $2.83 \pm 0.91$

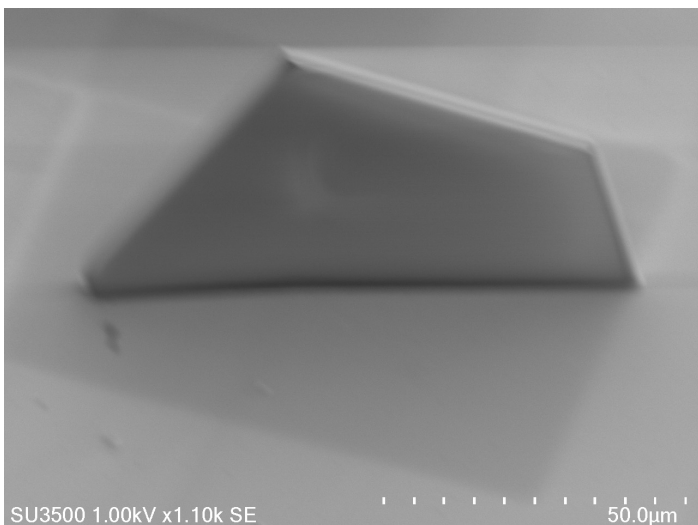
16h



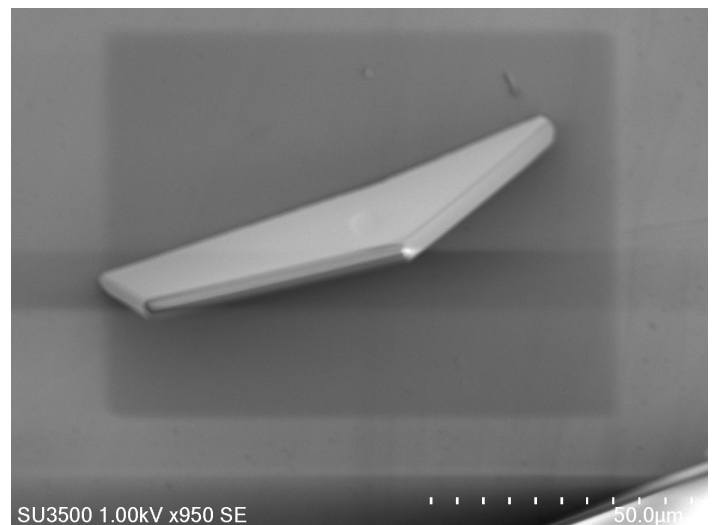
Tilt: 34°



O%:  $3.17 \pm 0.98$

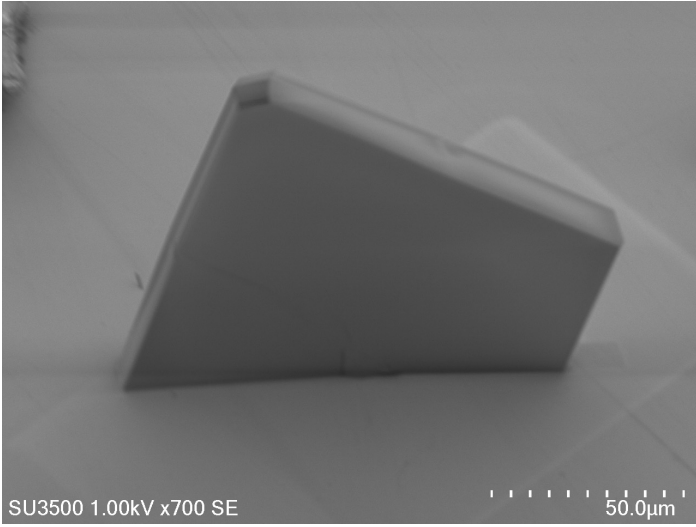


Tilt: 40°

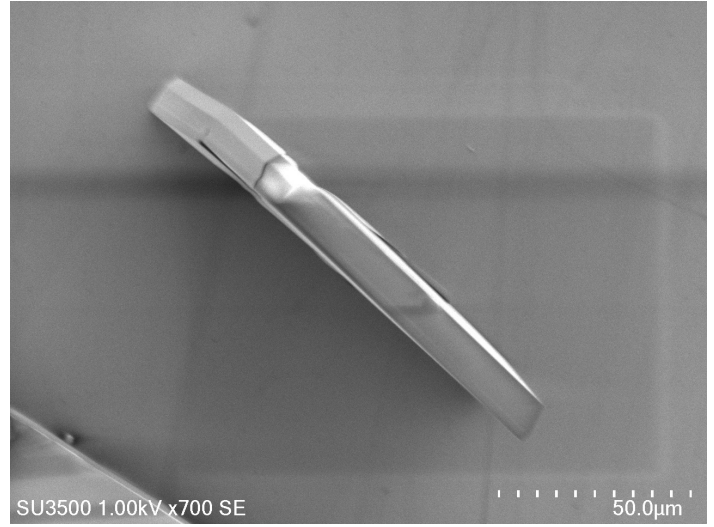


O%:  $4.58 \pm 1.52$

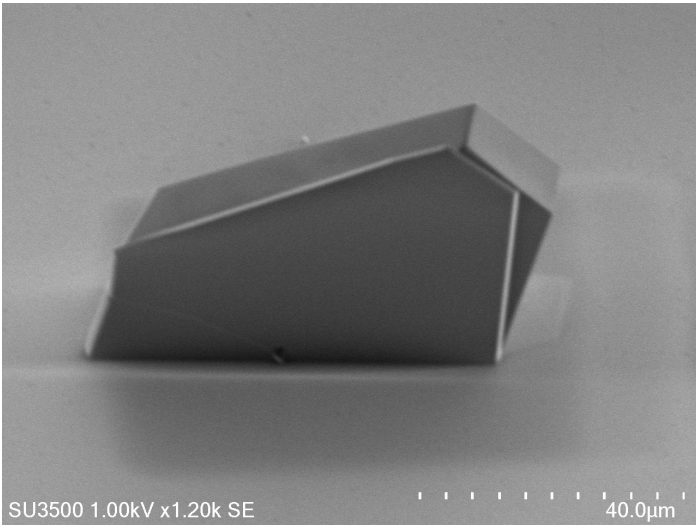
16h



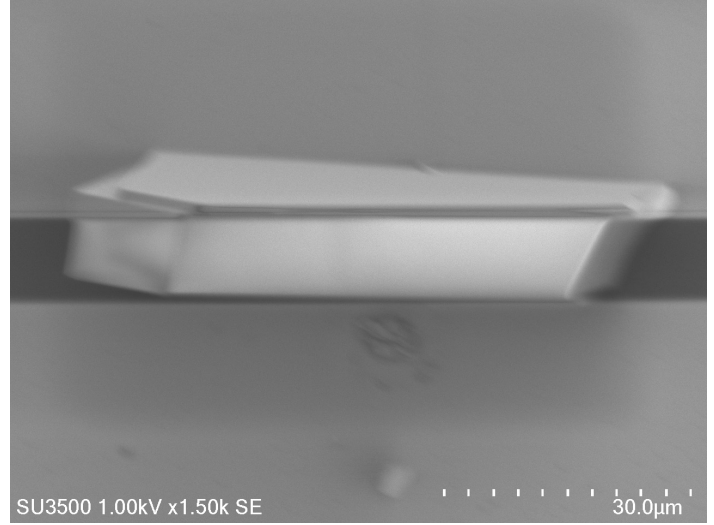
Tilt: 50°



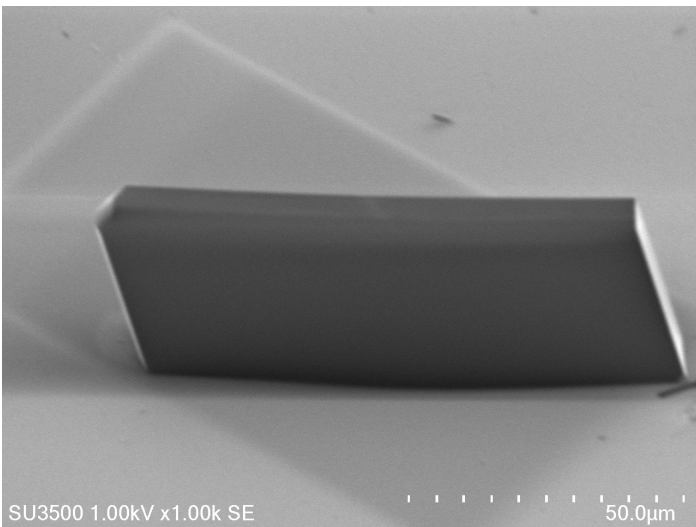
O%:  $4.01 \pm 1.01$



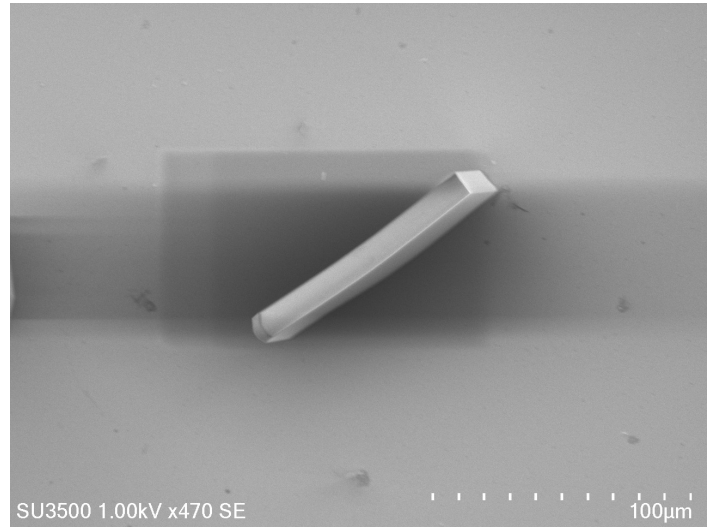
Tilt: 50°



O%:  $3.51 \pm 0.92$



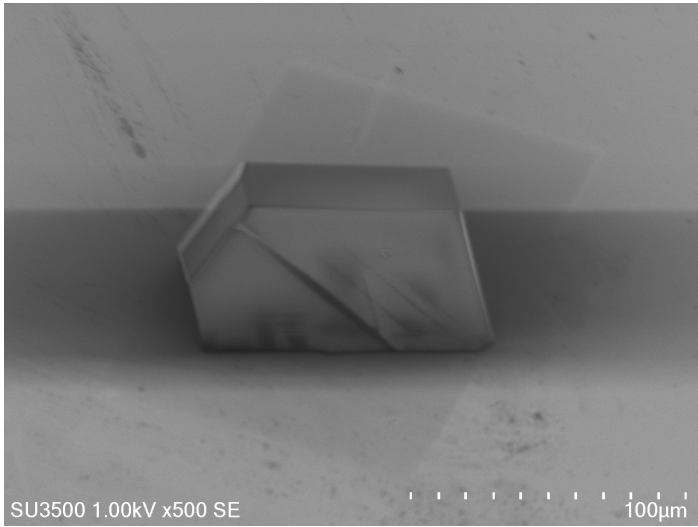
Tilt: 40°



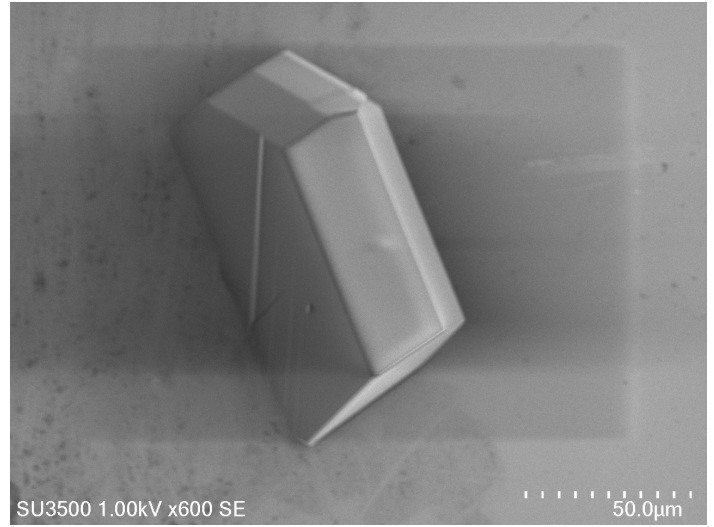
O%:  $4.76 \pm 1.08$

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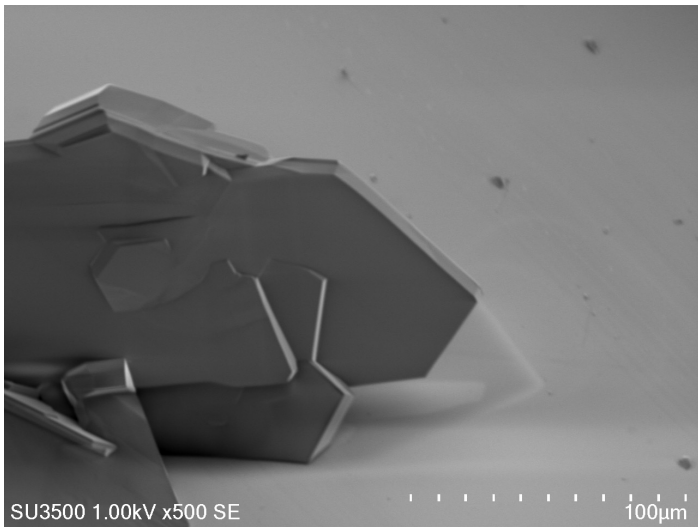
4h



Tilt: 20°

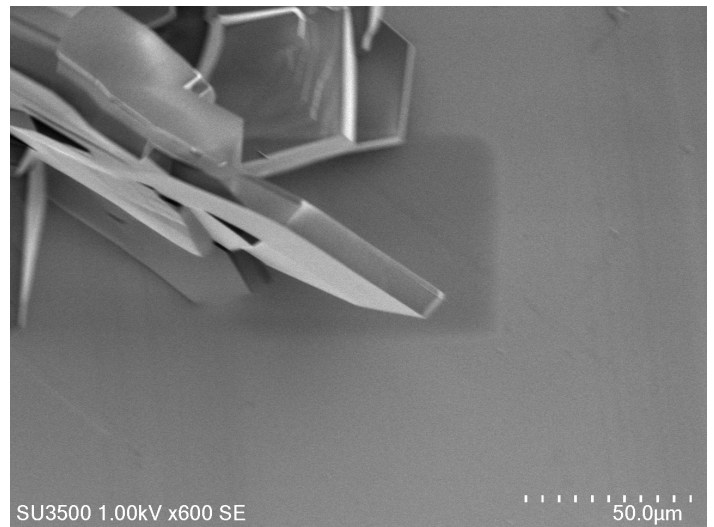


O%:  $1.73 \pm 0.65$

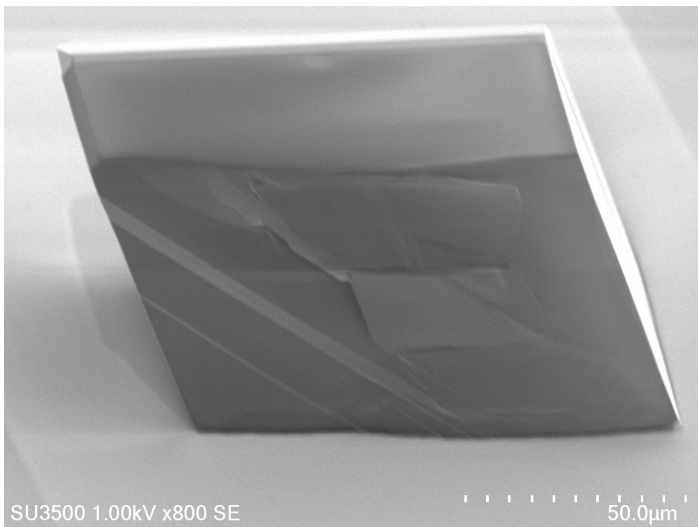


Tilt: 40°

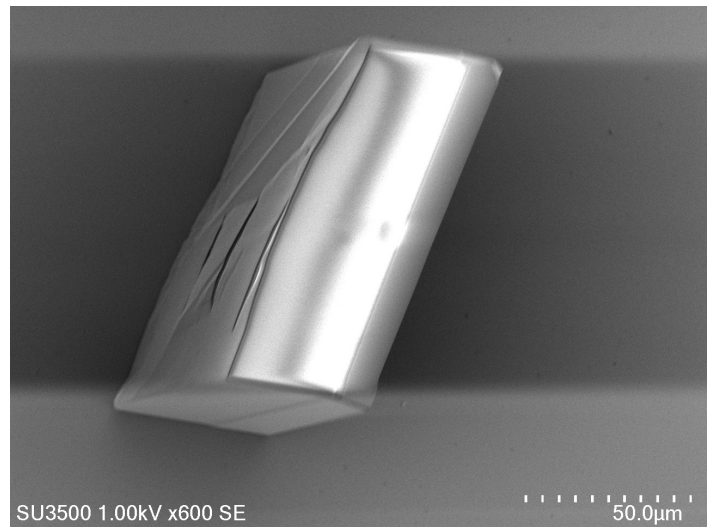
8h



O%:  $3.49 \pm 0.78$

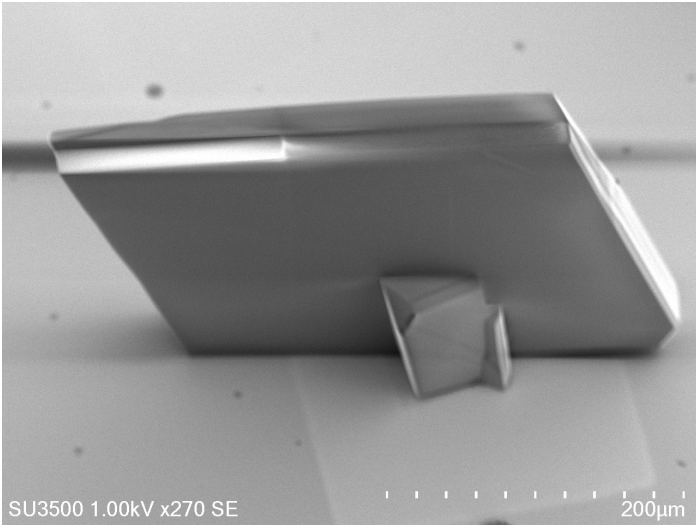


Tilt: 40°

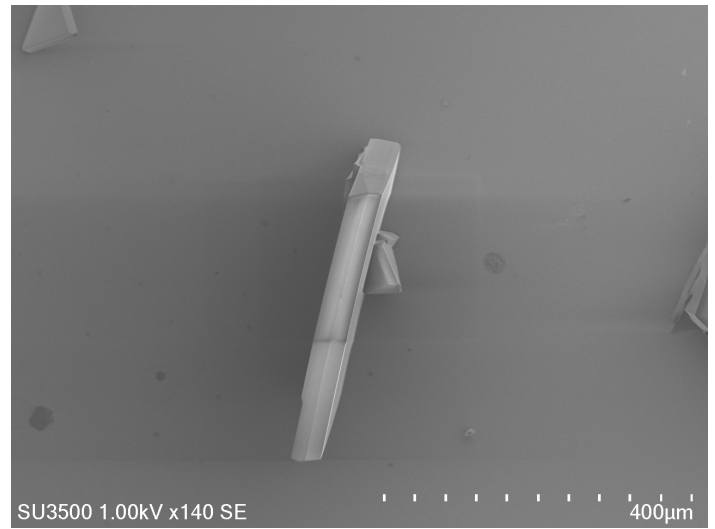


O%:  $2.97 \pm 0.85$

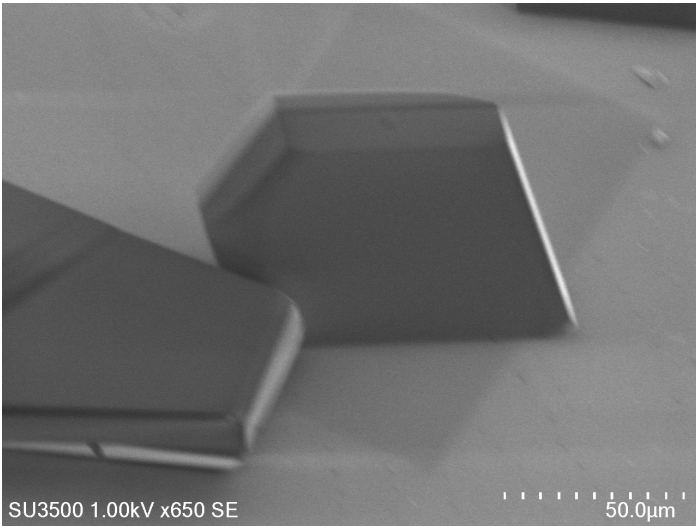
8h



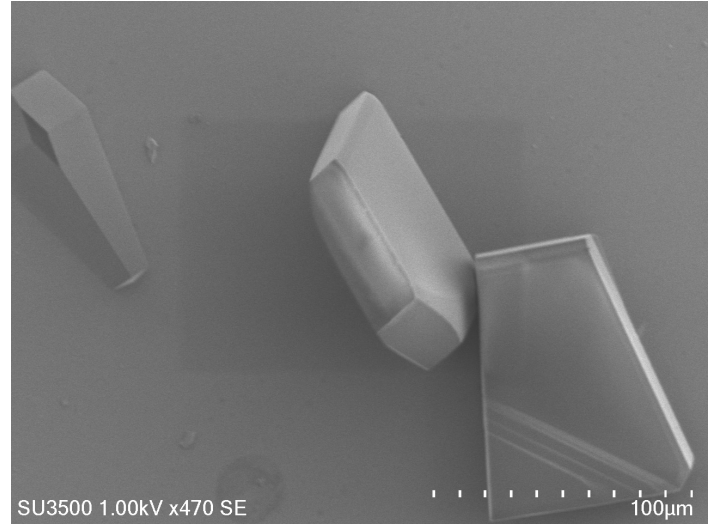
Tilt: 50°



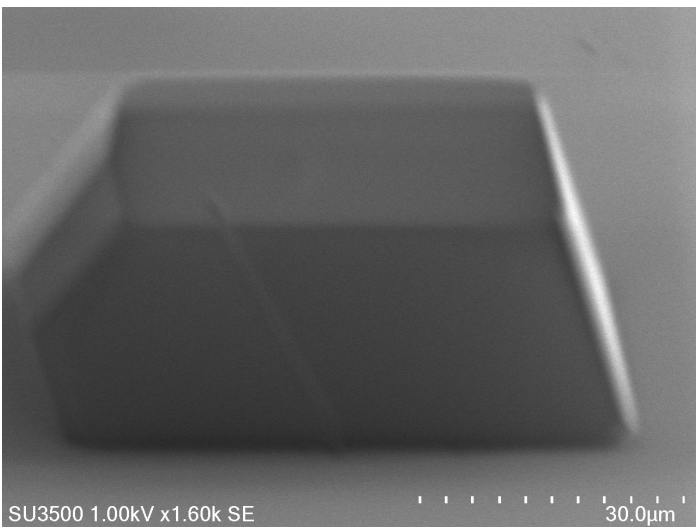
O%:  $3.15 \pm 0.81$



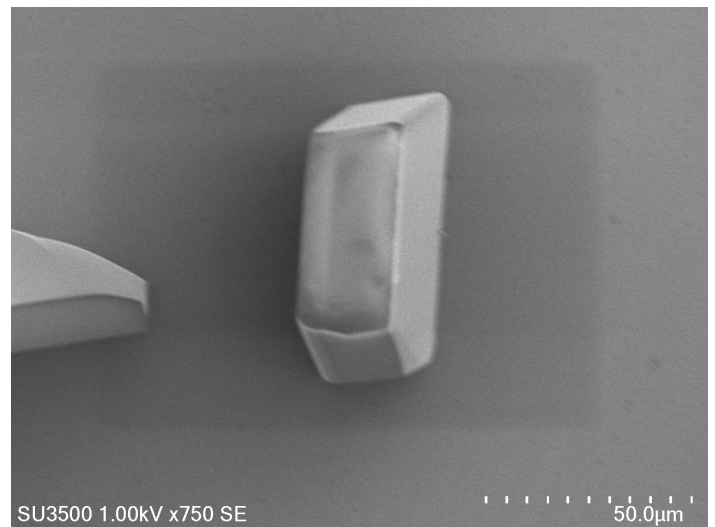
Tilt: 40°



O%:  $2.56 \pm 1.03$



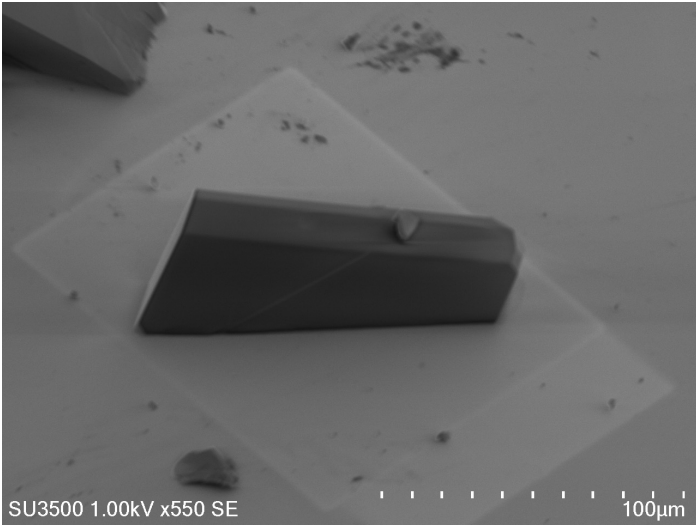
Tilt: 30°



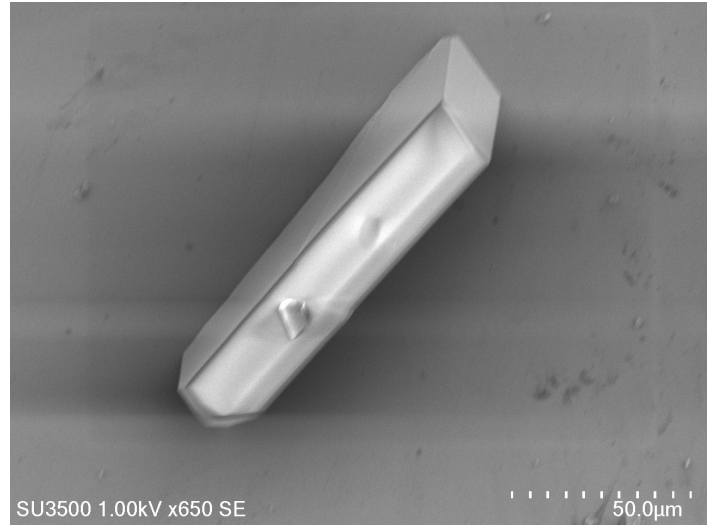
O%:  $2.81 \pm 0.91$



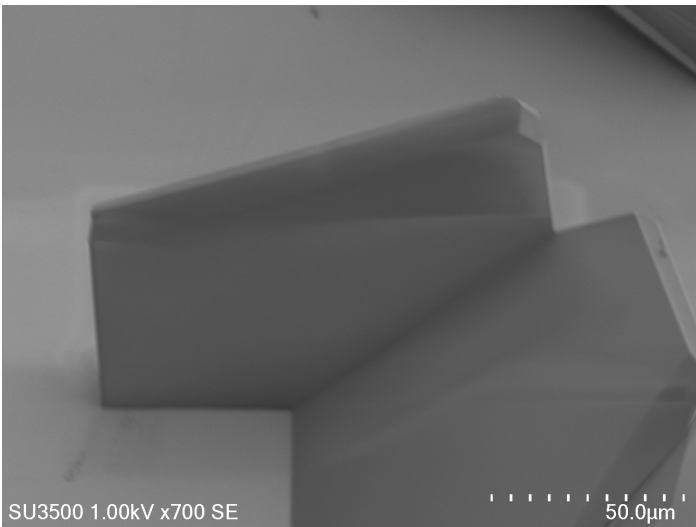
16h



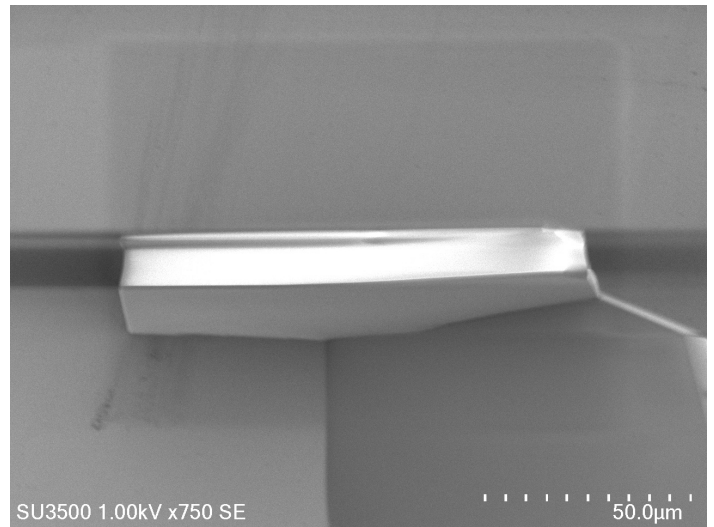
Tilt: 34°



O%:  $3.19 \pm 1.03$



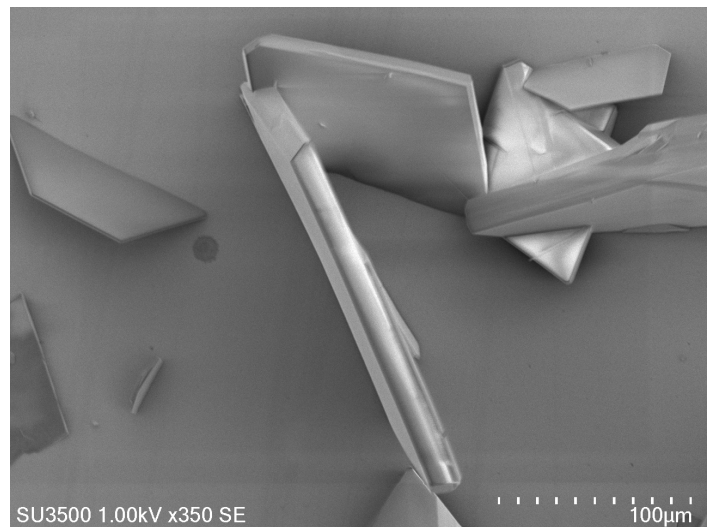
Tilt: 40°



O%:  $3.07 \pm 0.81$



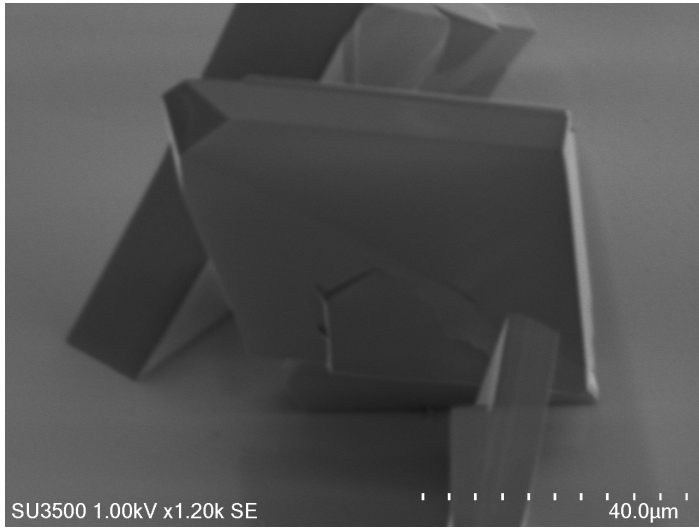
Tilt: 50°



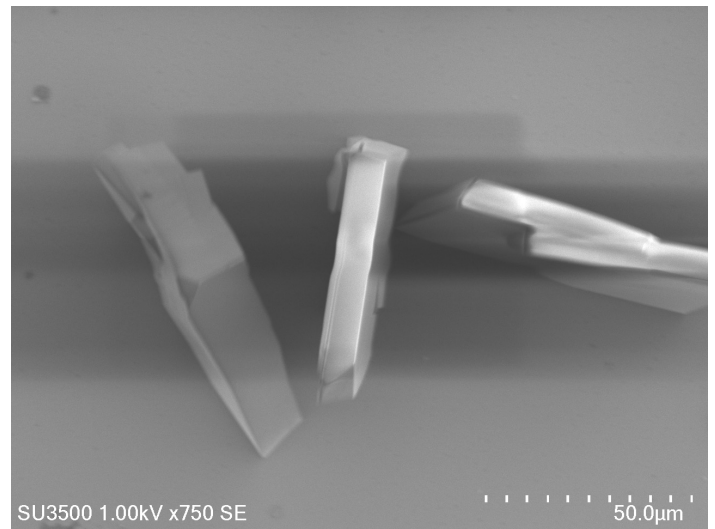
O%:  $10.13 \pm 3.61$

Grubbs Test Removed

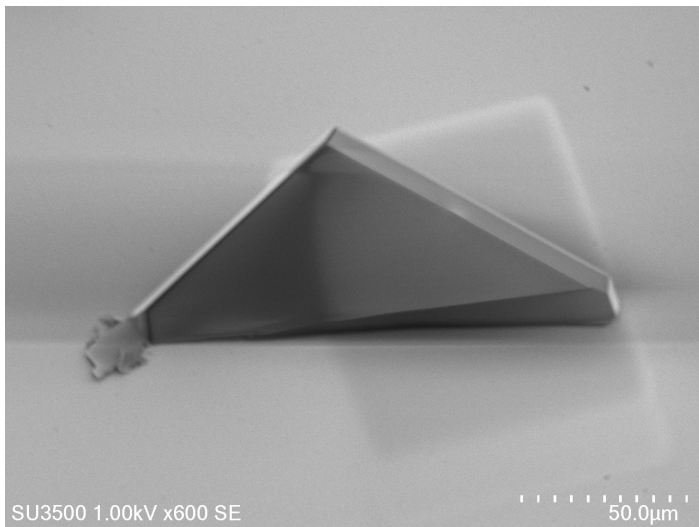
16h



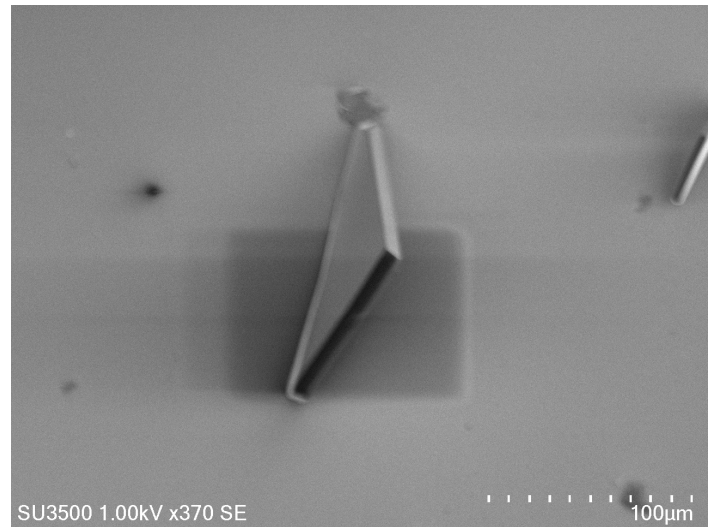
Tilt: 50°



O%:  $4.26 \pm 1.33$

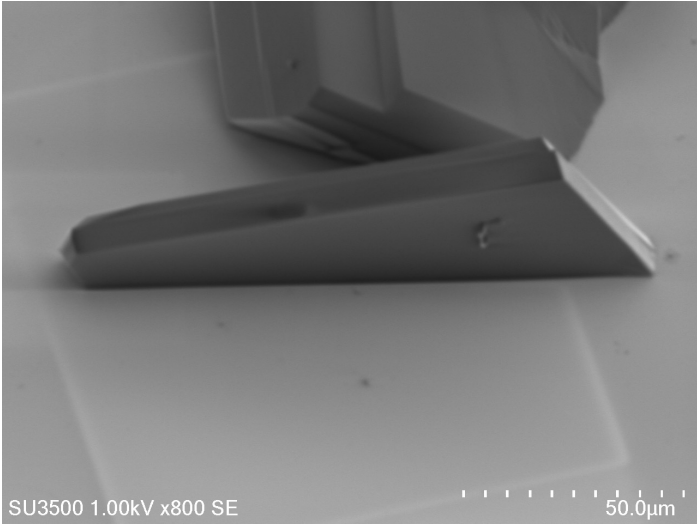


Tilt: 30°

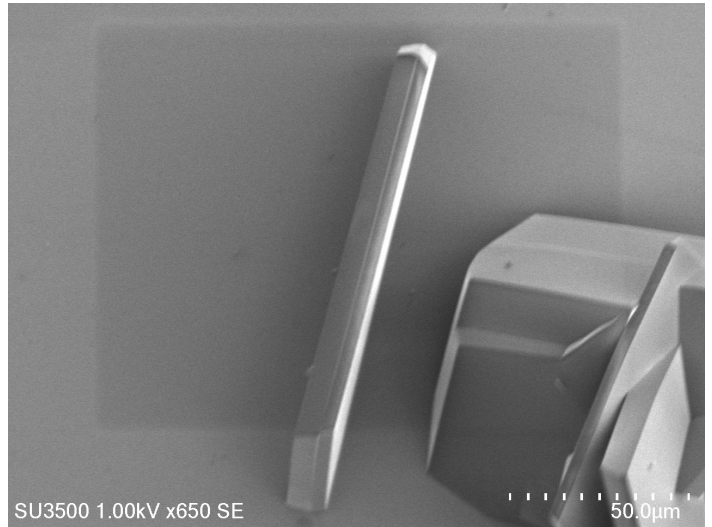


O%:  $4.44 \pm 1.09$

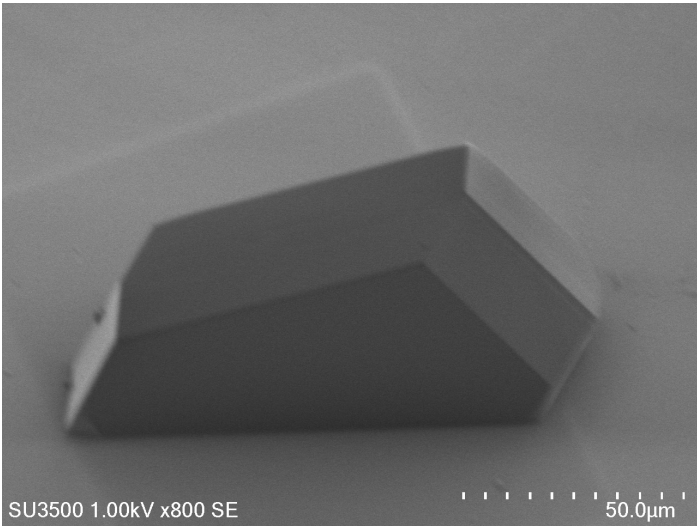
(111)  
8h



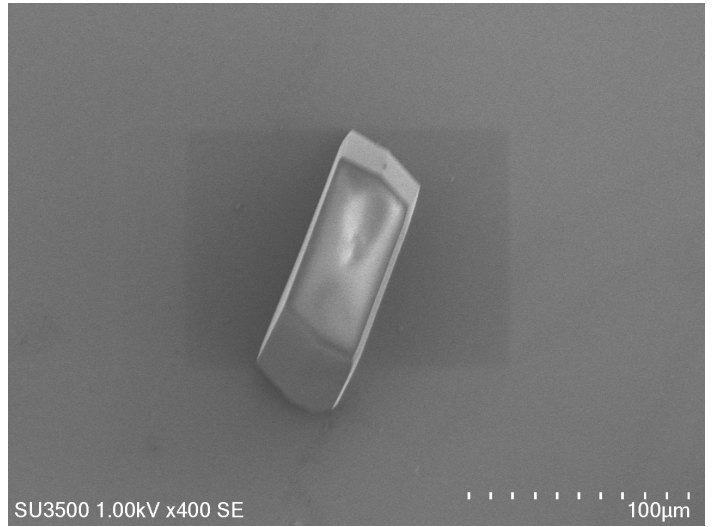
Tilt: 40°



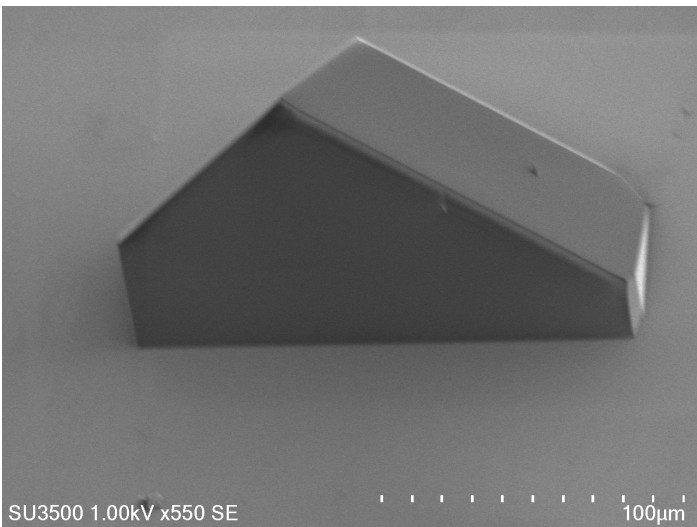
O%:  $4.91 \pm 1.19$



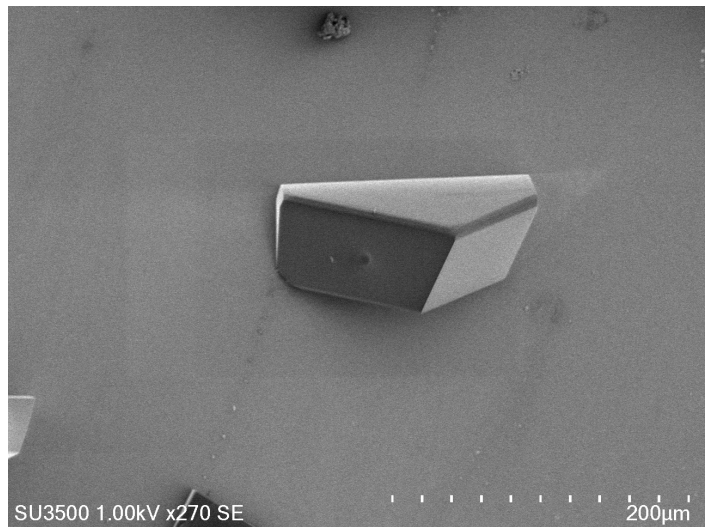
Tilt: 50°



O%:  $3.10 \pm 0.72$

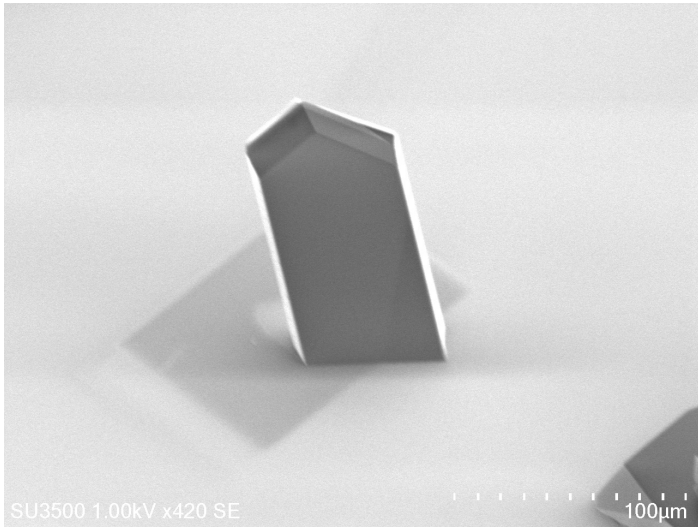


Tilt: 30°

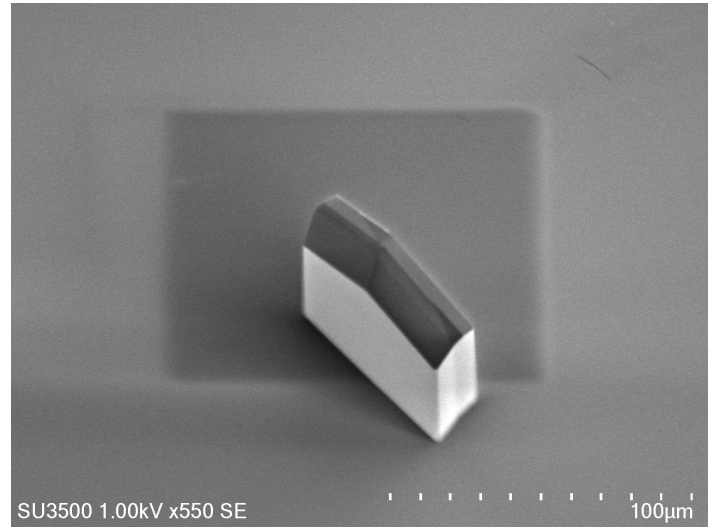


O%:  $4.05 \pm 0.92$

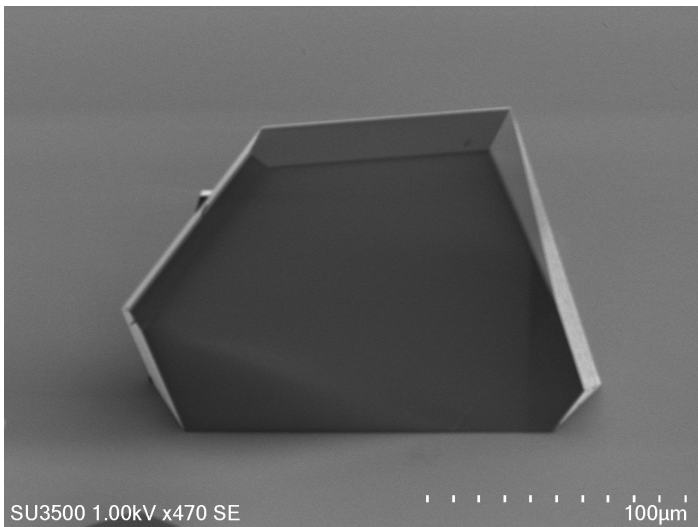
12h



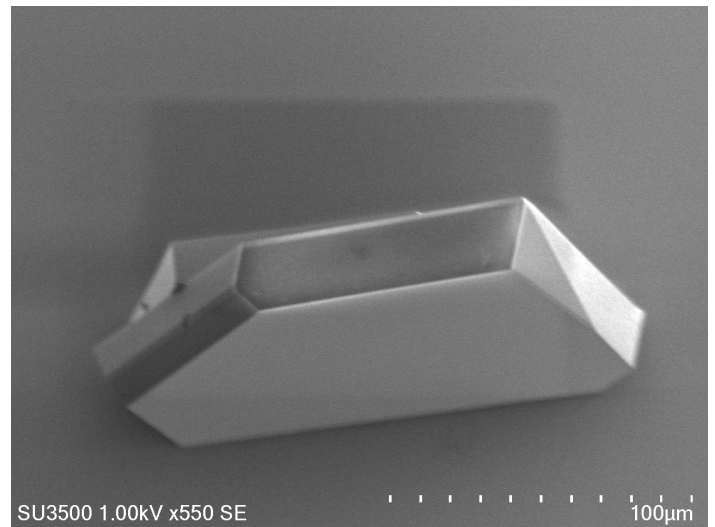
Tilt: 40°



O%:  $3.84 \pm 1.04$

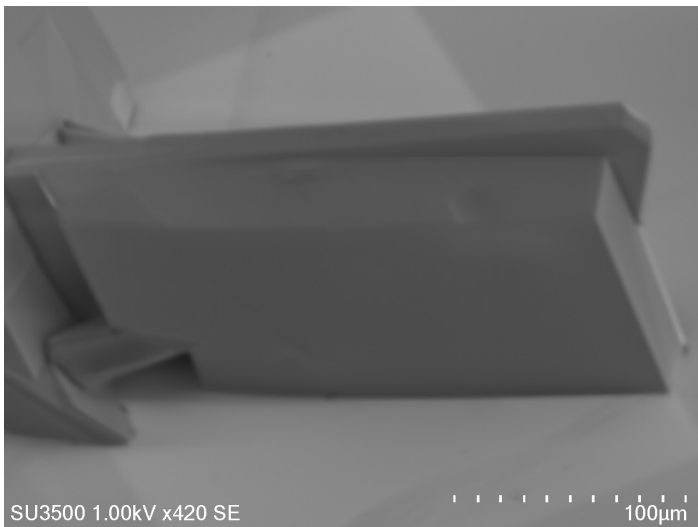


Tilt: 30°

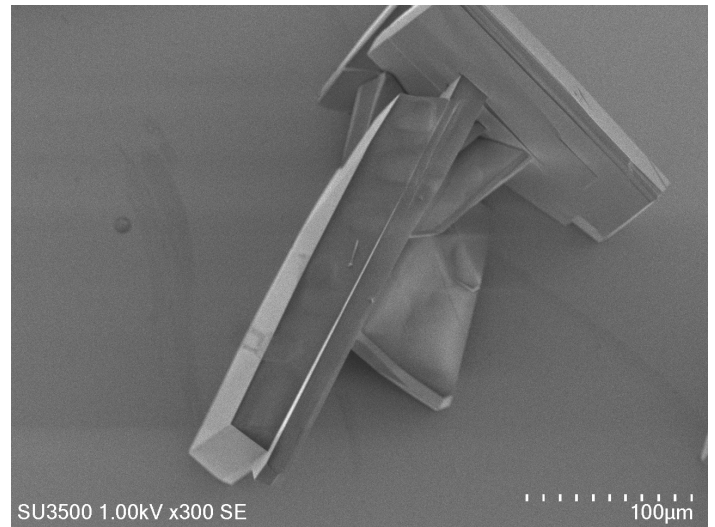


O%:  $2.28 \pm 0.64$

16h

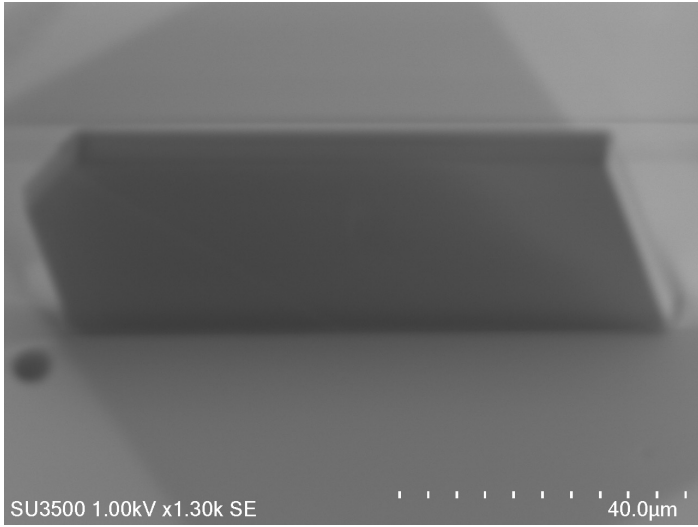


Tilt: 40°

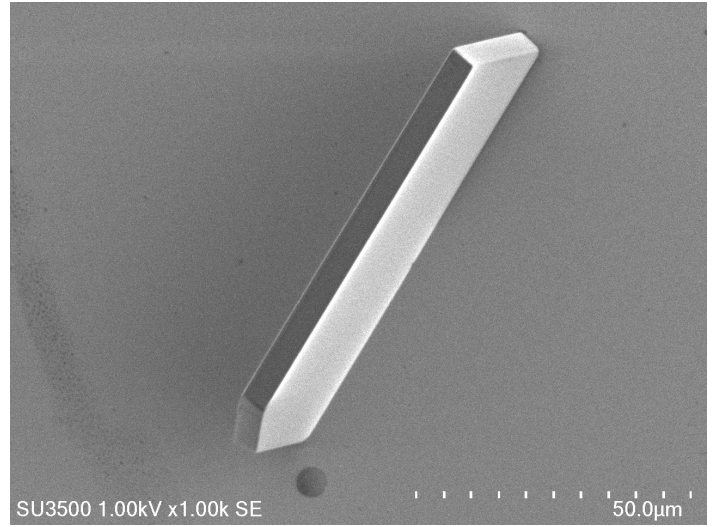


O%:  $11.67 \pm 2.32$

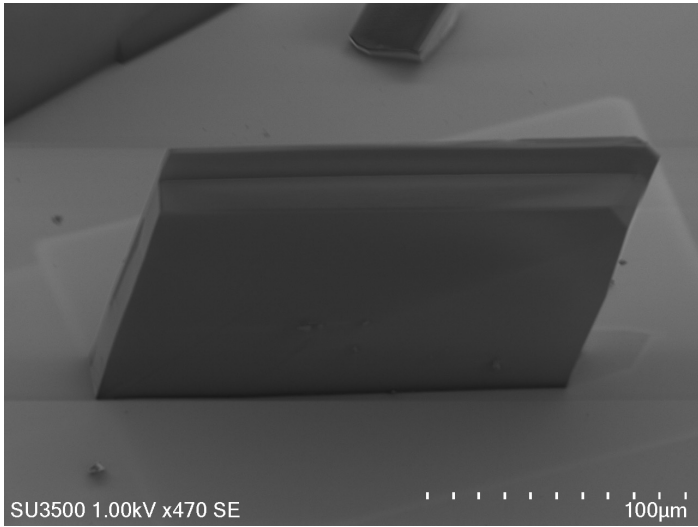
16h



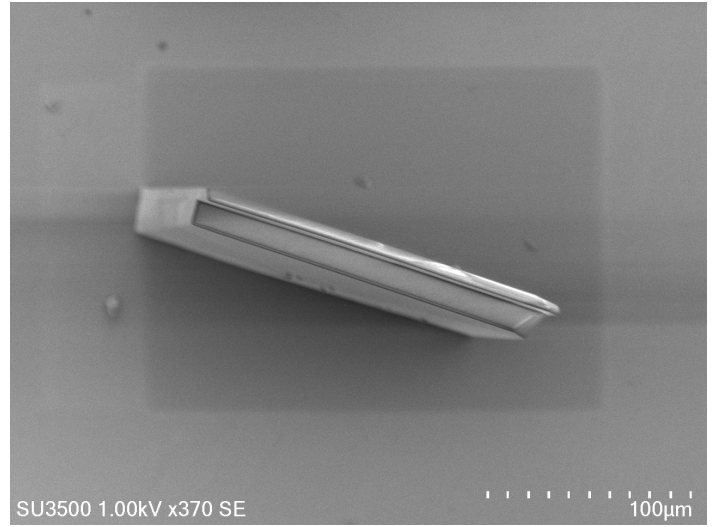
Tilt: 50°



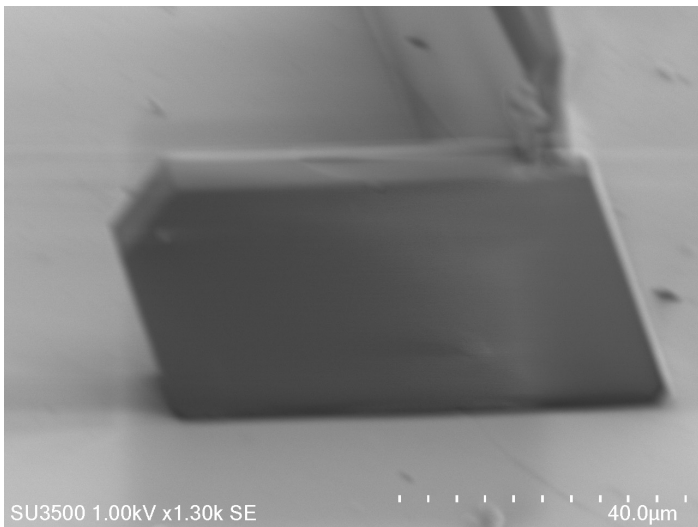
O%:  $11.87 \pm 2.81$



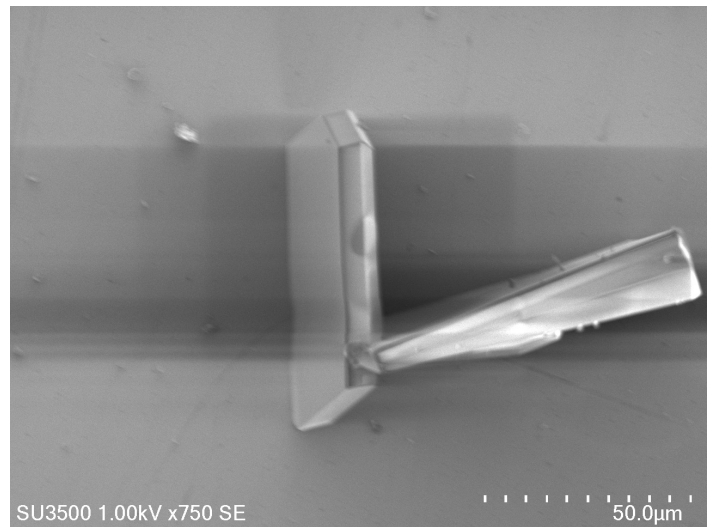
Tilt: 40°



O%:  $9.17 \pm 2.85$



Tilt: 30°

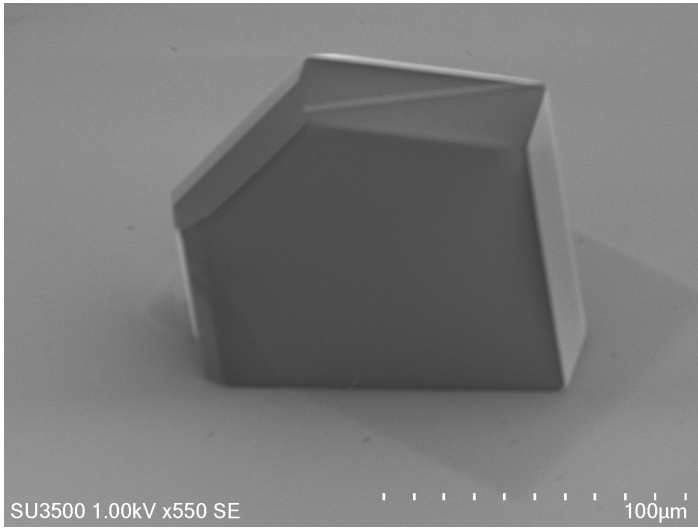


O%:  $4.96 \pm 1.43$

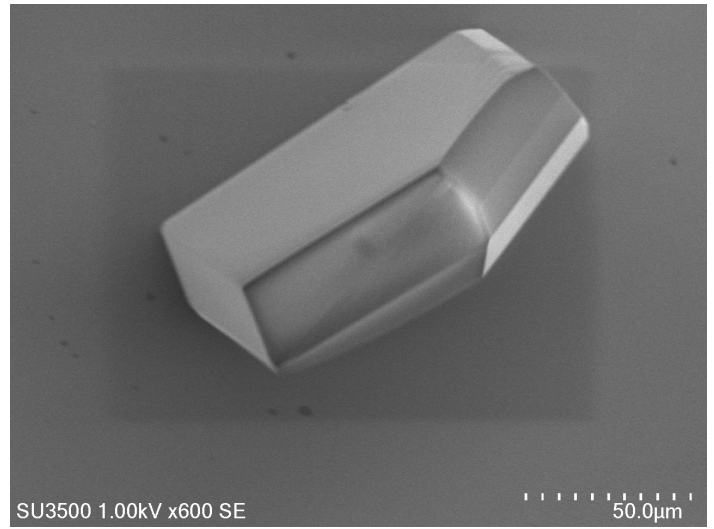
Grubbs Test Removed

(111)

0h

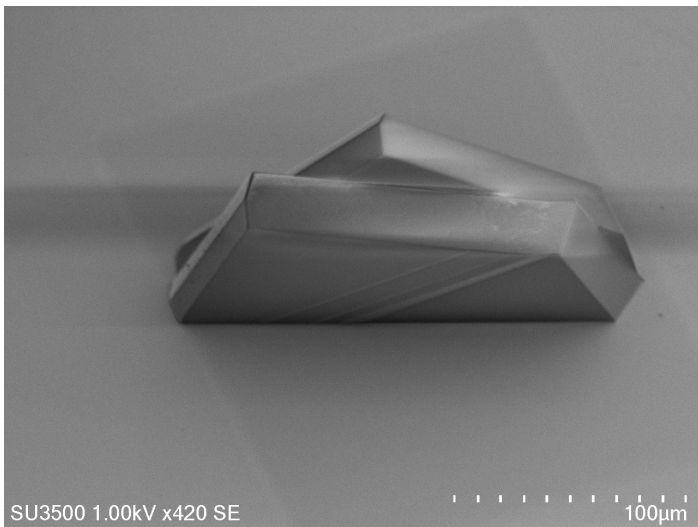


Tilt: 30°

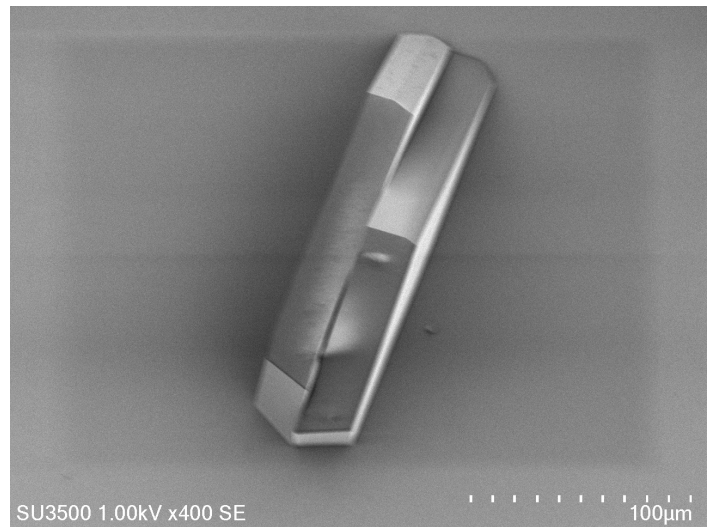


O%:  $1.23 \pm 0.48$

4h

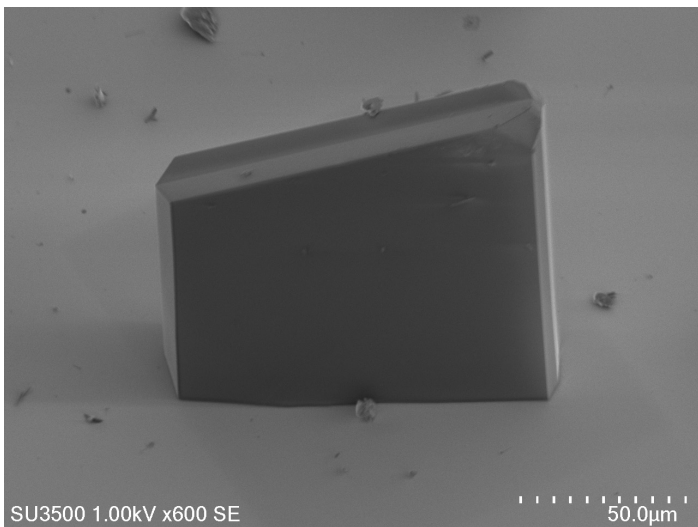


Tilt: 50°

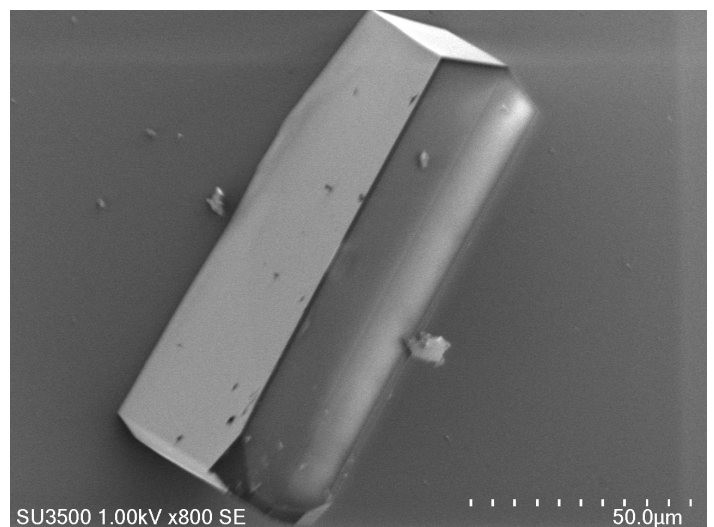


O%:  $3.63 \pm 1.00$

8h

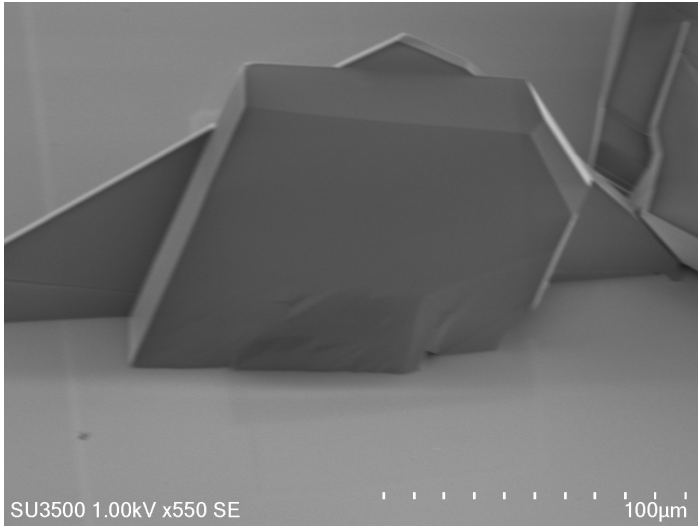


Tilt: 30°

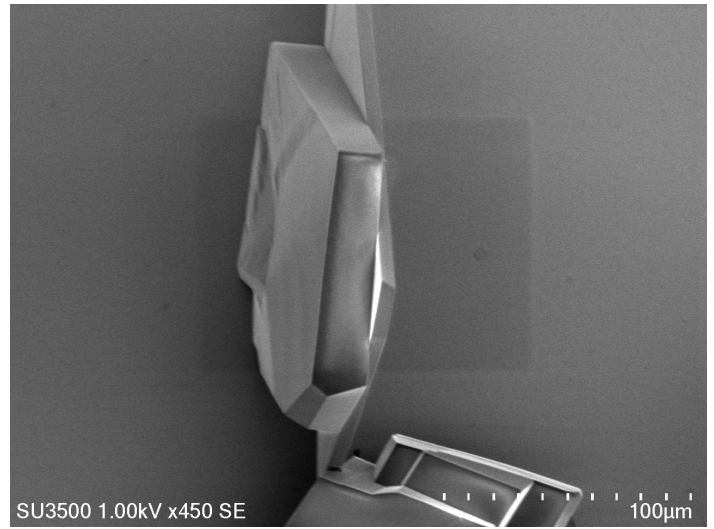


O%:  $3.89 \pm 0.98$

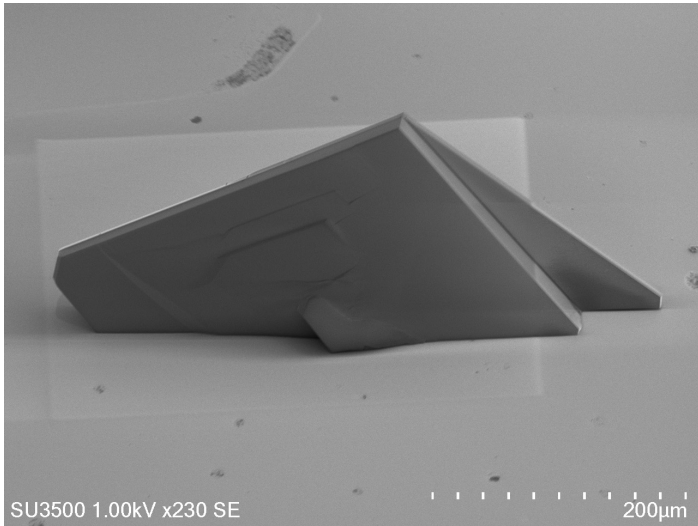
8h



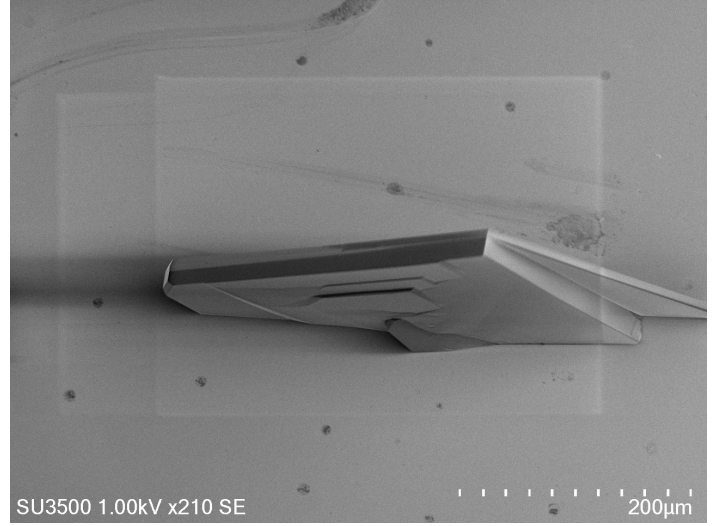
Tilt: 30°



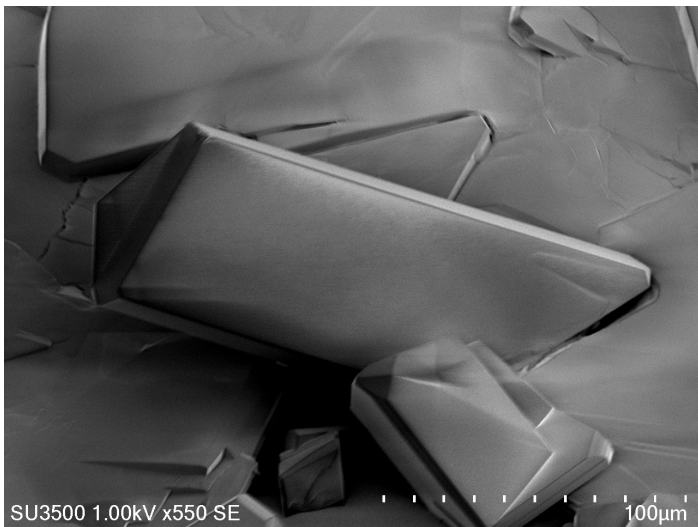
O%:  $1.95 \pm 0.58$



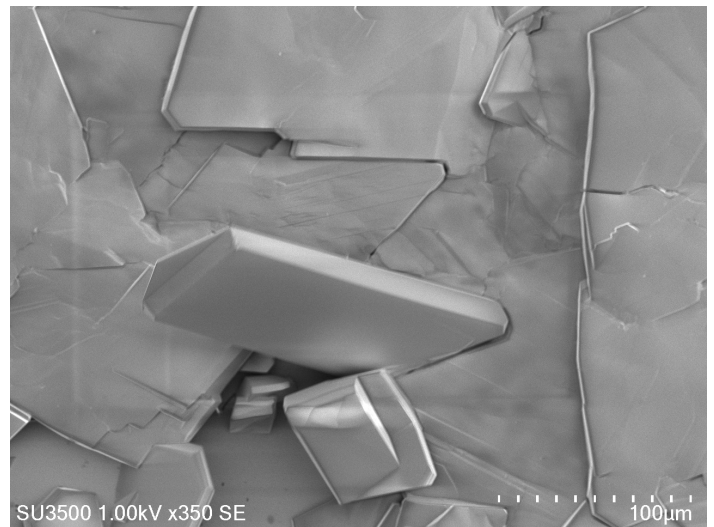
Tilt: 30°



O%:  $2.92 \pm 0.85$

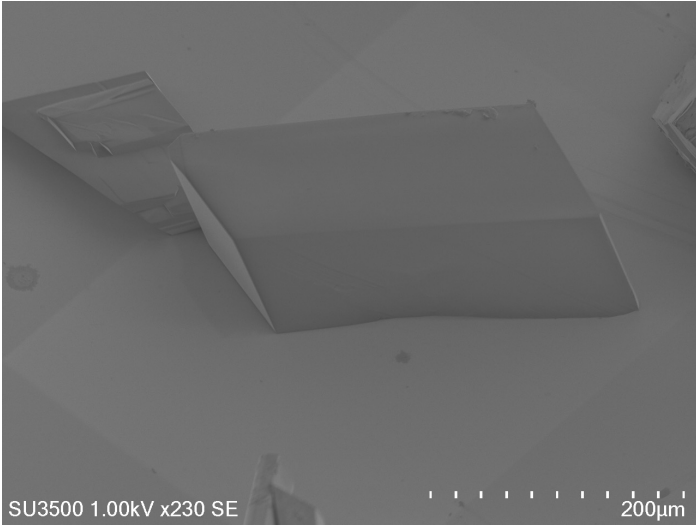


Tilt: 20°

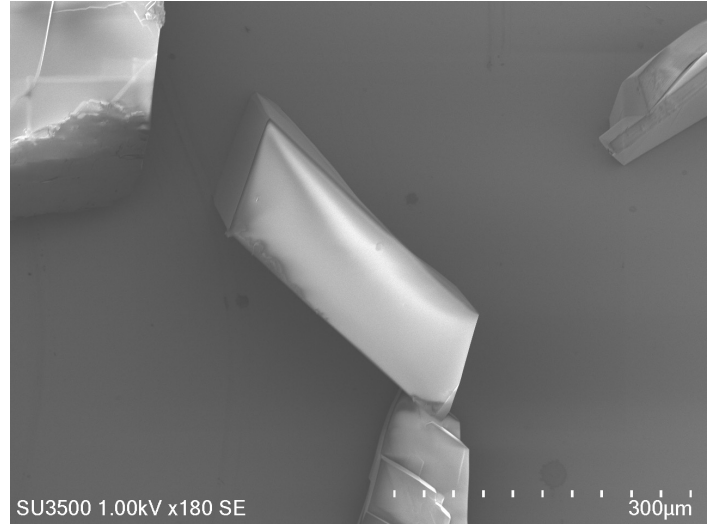


O%:  $2.94 \pm 0.90$

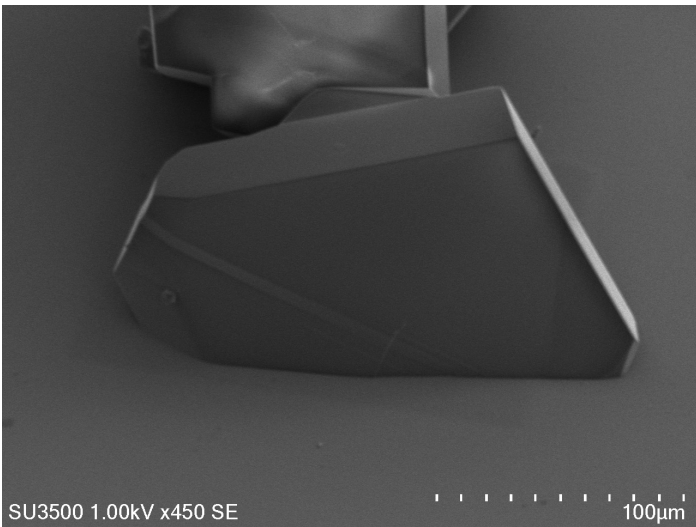
8h



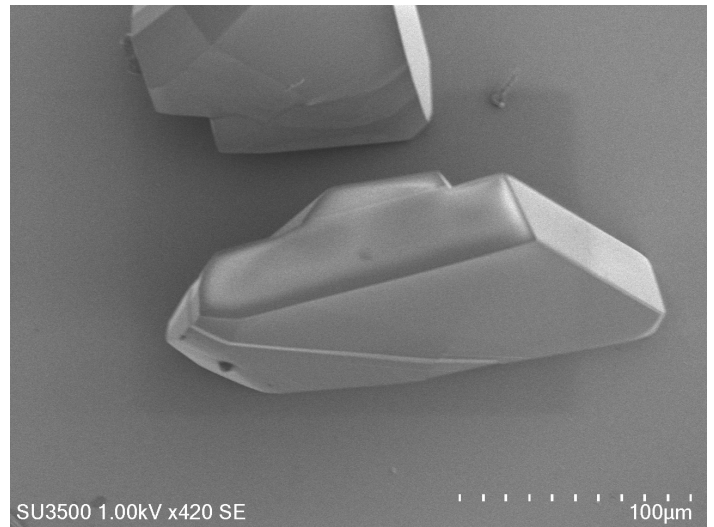
Tilt: 50°



O%:  $3.77 \pm 0.96$

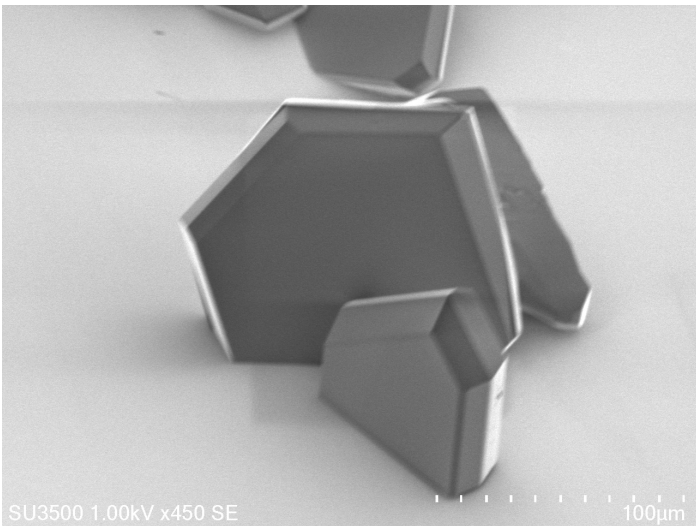


Tilt: 30°

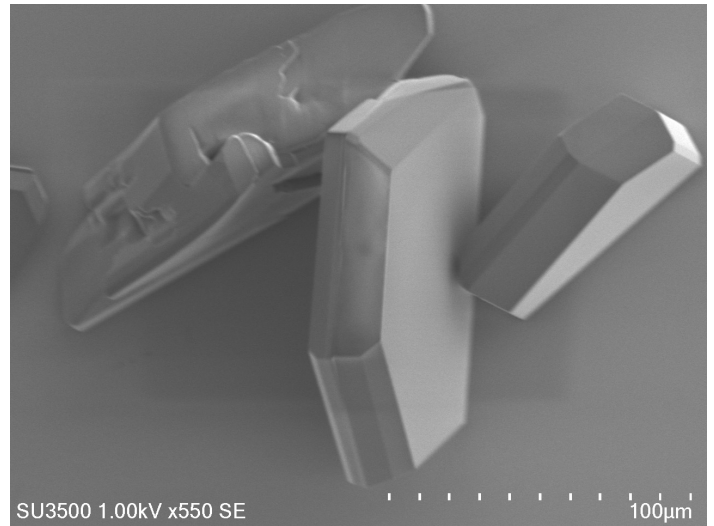


O%:  $3.00 \pm 0.74$

12h



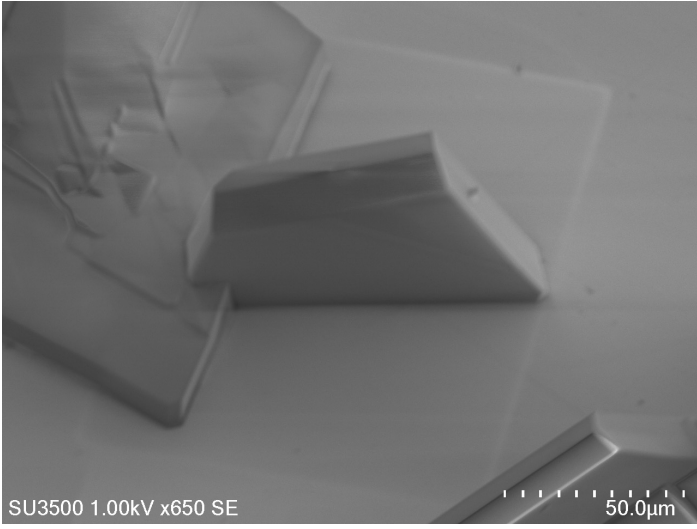
Tilt: 30°



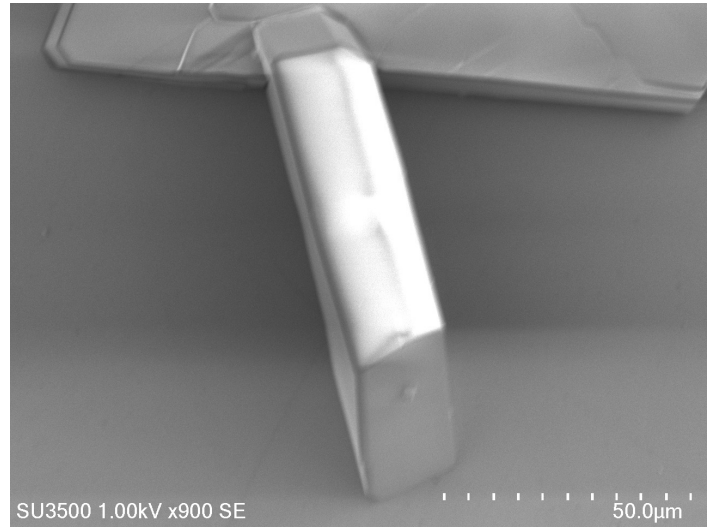
O%:  $3.23 \pm 0.98$



16h



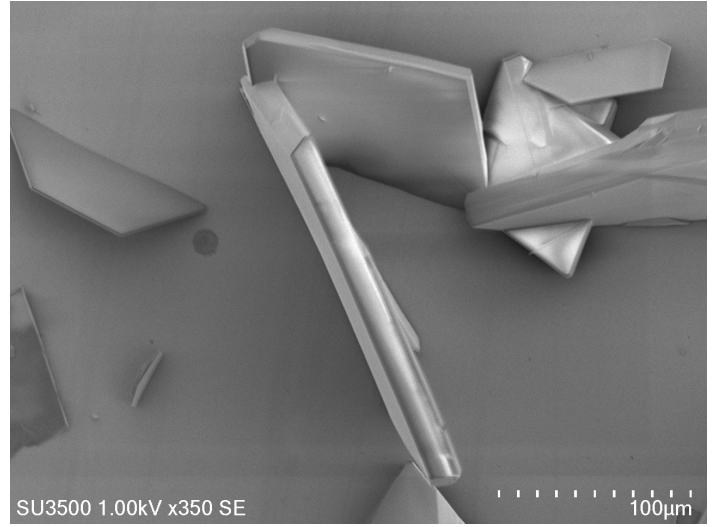
Tilt: 50°



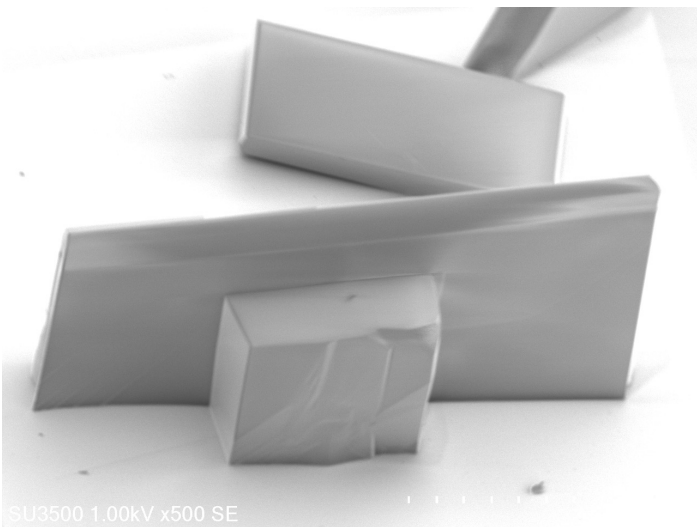
O%:  $2.78 \pm 0.94$



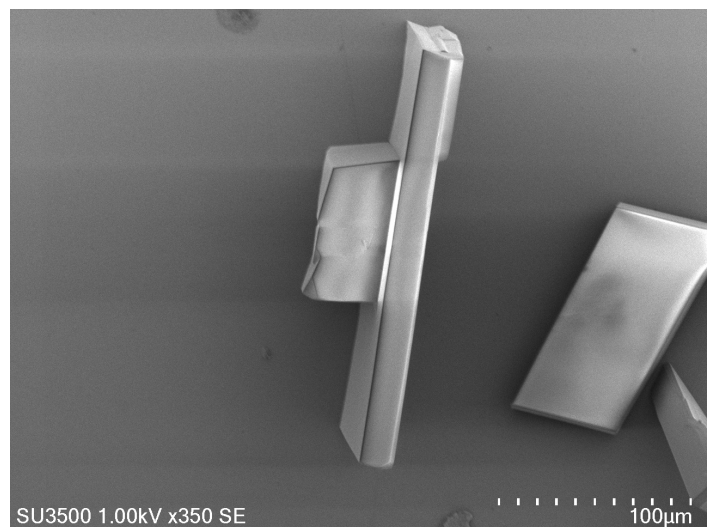
Tilt: 50°



O%:  $7.62 \pm 2.11$

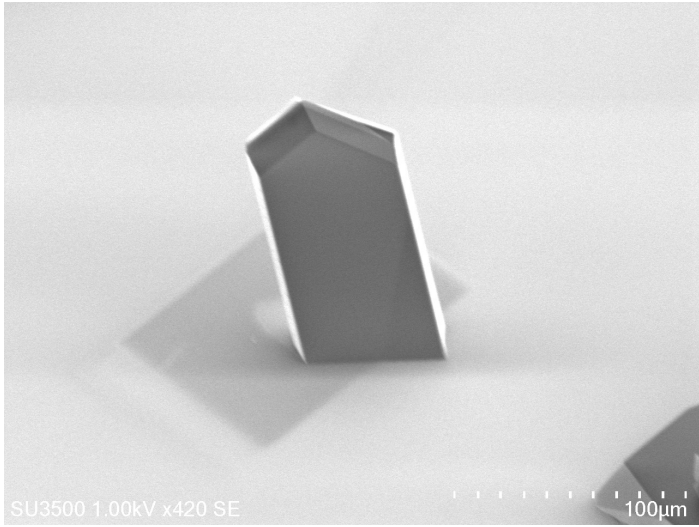


Tilt: 40°

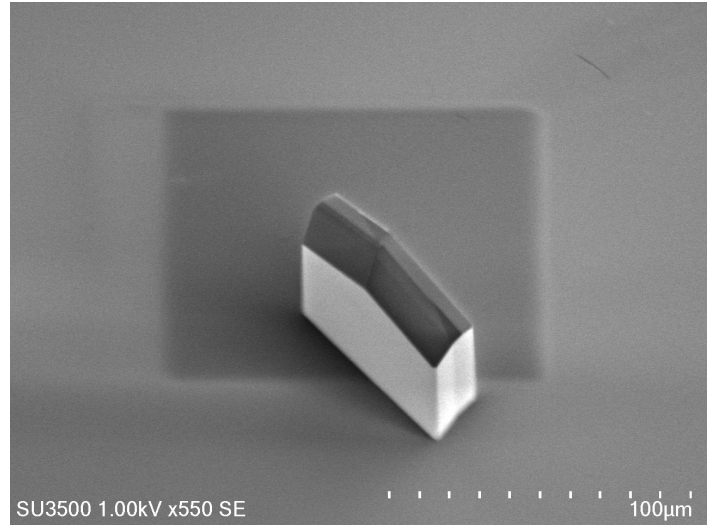


O%:  $3.87 \pm 1.28$

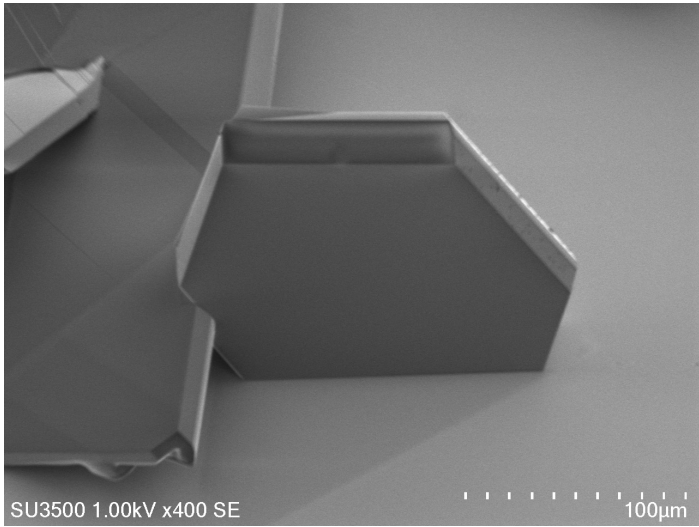
(111)  
12h



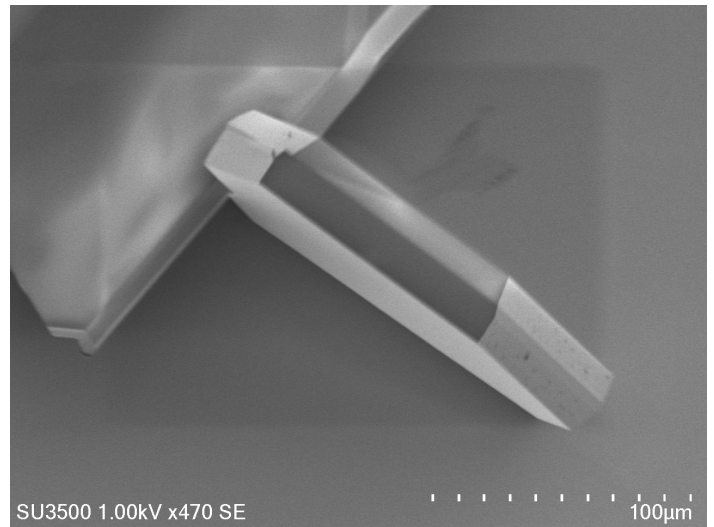
Tilt: 40°



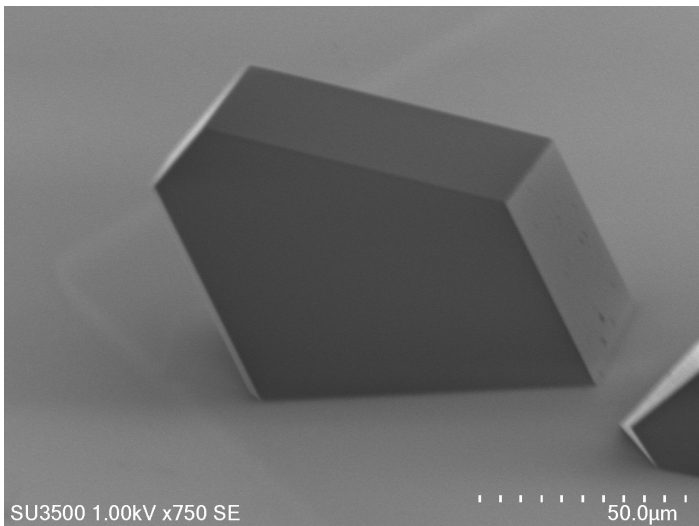
O%:  $4.59 \pm 1.26$



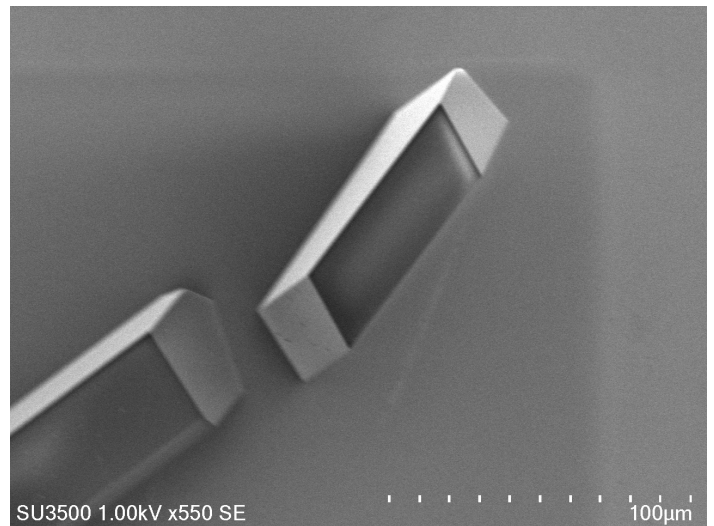
Tilt: 40°



O%:  $2.51 \pm 0.71$

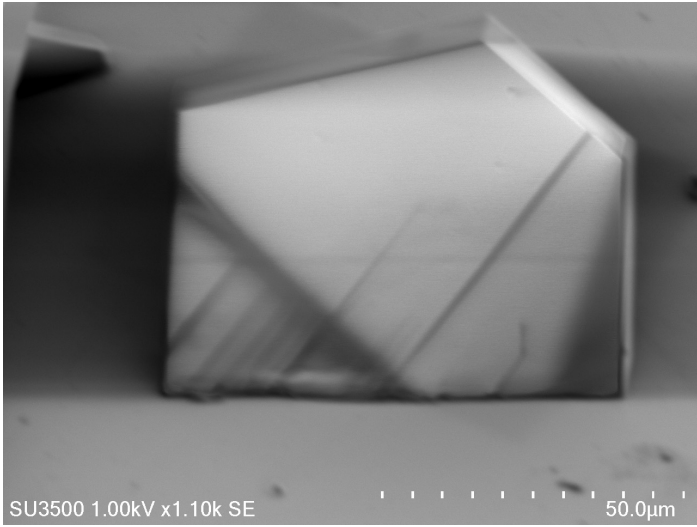


Tilt: 40°

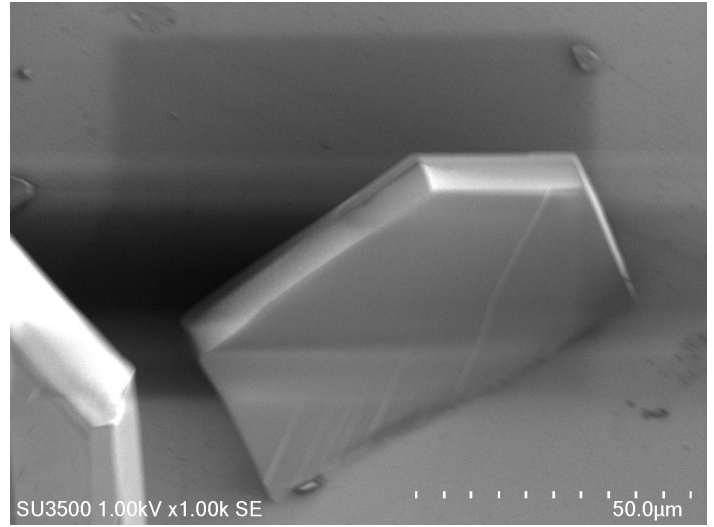


O%:  $2.51 \pm 0.85$

16h

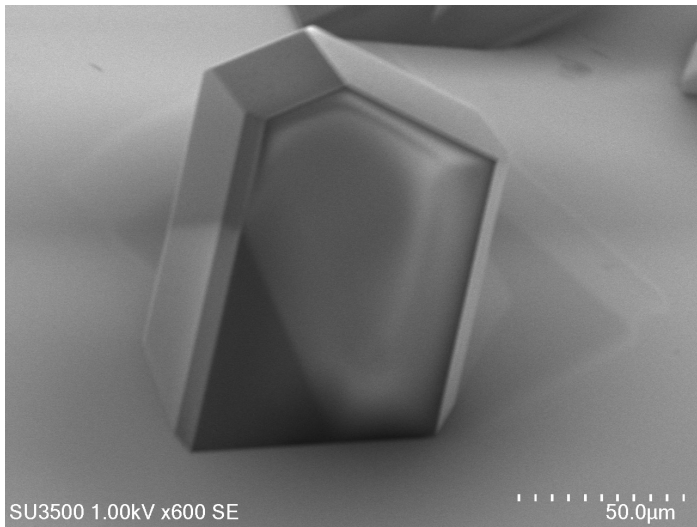


Tilt: 20°

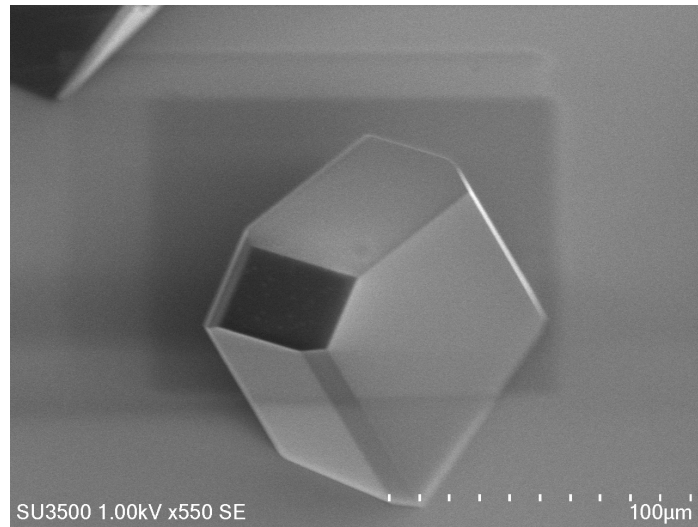


(201)

12h

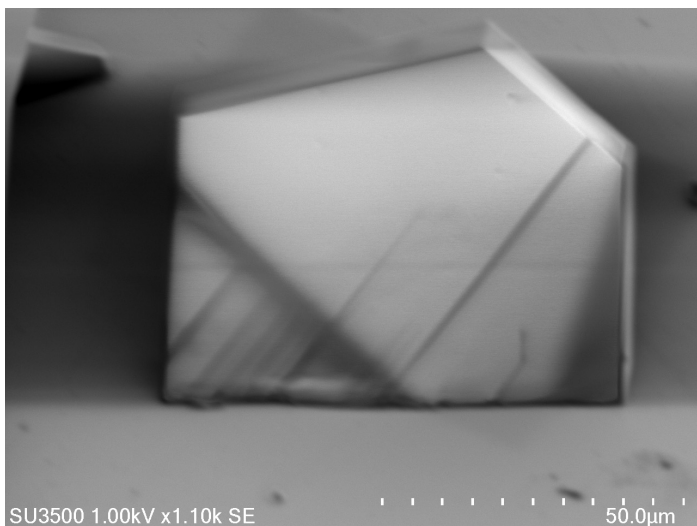


Tilt: 20°

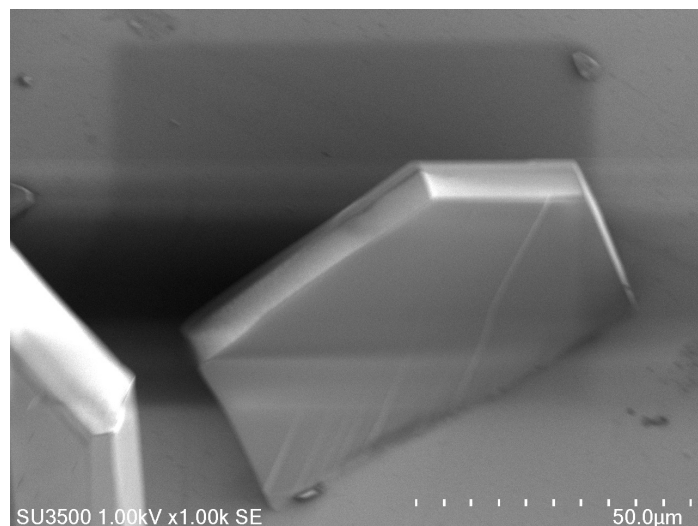


O%:  $1.80 \pm 0.74$

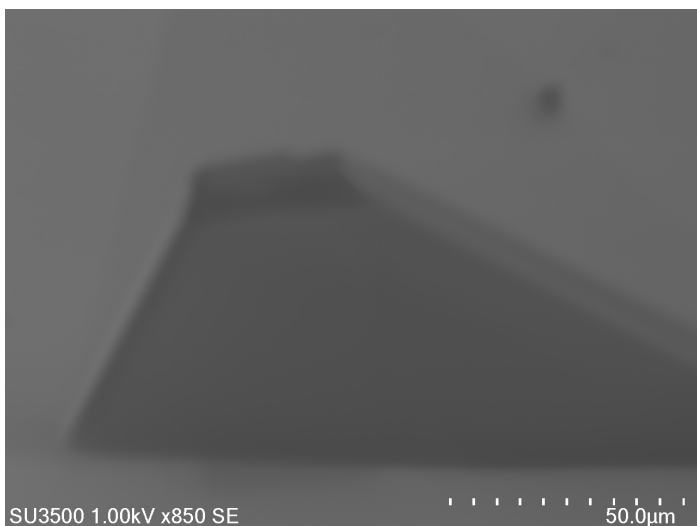
16h



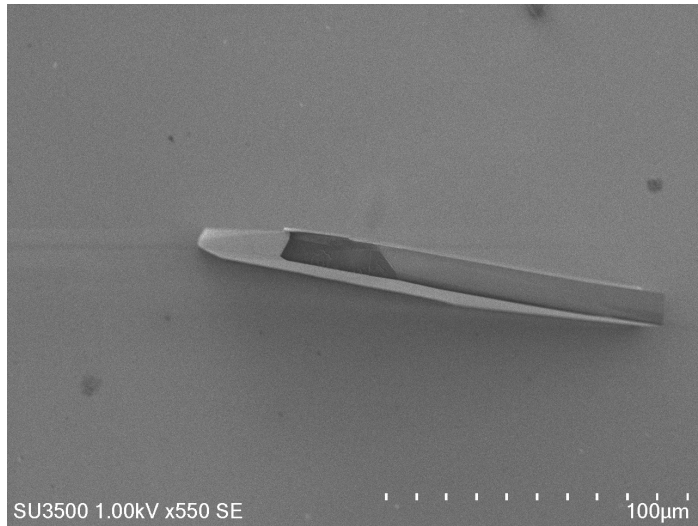
Tilt: 20°



O%:  $4.18 \pm 1.04$



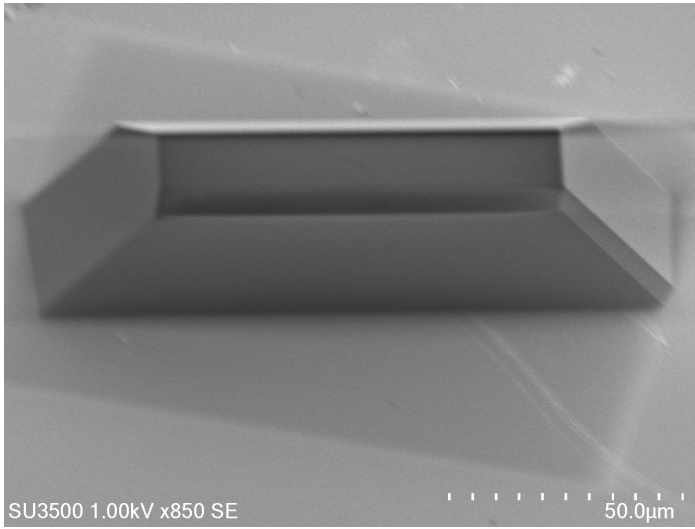
Tilt: 50°



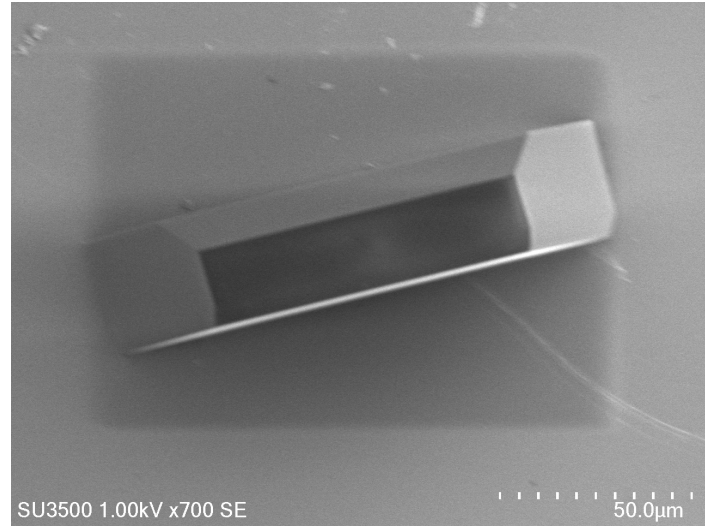
O%:  $2.26 \pm 1.06$

(201)

12h

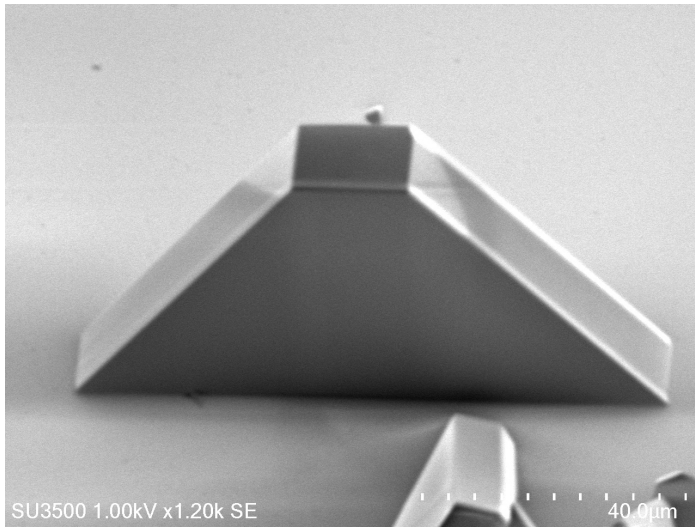


Tilt: 50°

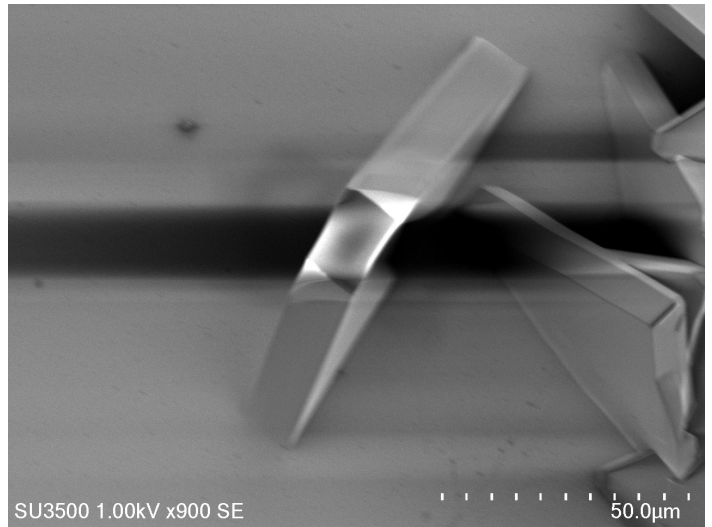


O%:  $2.47 \pm 0.62$

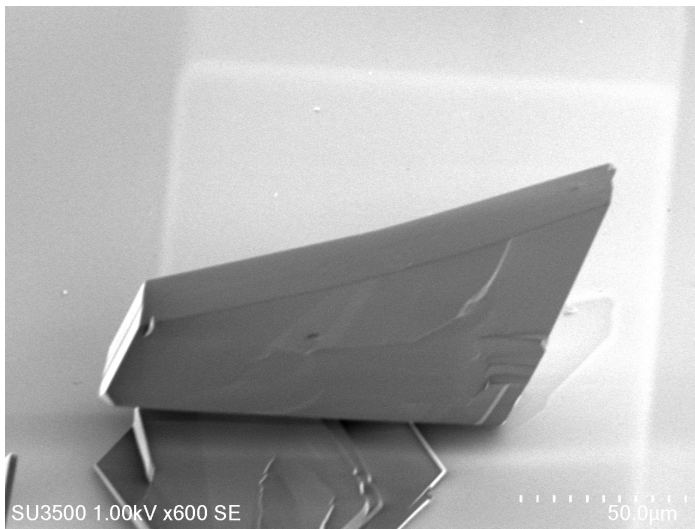
16h



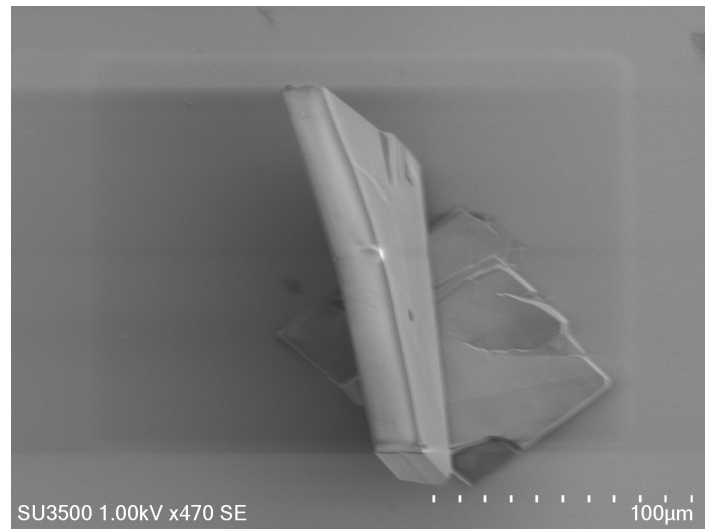
Tilt: 50°



O%:  $3.93 \pm 1.46$



Tilt: 40°



O%:  $3.96 \pm 1.13$