



Table S2: Composition of source bulk material and studied thin films

Source glass  $\text{As}_{33}\text{S}_{67}$

As	33.1±0.1
S	66.9±0.1

Vacuum thermally evaporated thin films

Time of doping [min]	As	S	O	Ag
0	33.4±0.2	64.6±0.2	2±0.2	
0.5	31.8±0.3	60.7±0.4	2.7±0.3	4.8±0.3
1	31.4±0.2	60.1±0.7	2.6±0.3	5.9±0.8
1.5	28.9±0.9	54.9±2.0	2.9±0.3	13.3±2.8
2	26.8±0.9	51.0±1.2	3.1±0.5	19.1±2.0
2.5	24.6±0.8	47.5±1.1	3.3±0.7	24.6±1.5
3	22.5±1.7	44.5±1.9	3.9±0.6	29.1±3.6
3.5	19.6±1.1	41.8±0.7	3.7±0.3	35.0±1.9
4	17.3±1.2	40.3±0.9	4.2±0.4	38.2±1.8
4.5	15.1±1.0	38.5±0.8	4.2±0.4	42.1±1.9
5	14.1±1.1	38.1±0.8	4.3±0.5	43.5±2.1
7.5	10.5±1.2	35.9±0.7	4.4±0.4	49.2±1.7
10	9.4±0.8	35.1±0.6	4.5±0.5	51.0±1.5

Spin-coated as-prepared thin films

Time of doping [s]	As	S	O	Ag
0	28.3±0.6	63,4±1.2	8.3±1.2	
10	23.5±0.5	53,9±1.3	6.8±0.9	15.7±1.1
20	22.2±1.0	51.7±2.1	7.4±0.5	18.7±3.2
30	19.2±1.6	46.2±3.1	6.6±1.1	28.0±6.4
40	18.1±2.4	44.7±4.5	8.0±1.5	29.2±7.4

Spin-coated annealed at 100 °C thin films

Time of doping [min]	As	S	O	Ag
0	30.4±0.3	65.4±0.5	4.1±0.3	
0.5	29.3±0.2	63.8±0.4	3.7±0.2	3.1±0.3
1	28.5±0.4	61.6±0.6	4.1±0.3	5.7±0.6
1.5	27.4±0.4	59.7±0.7	4.2±0.5	8.7±0.7
2	26.0±0.5	56.7±1.1	4.6±0.4	12.7±1.7
2.5	23.5±1.2	52.6±2.4	4.5±0.8	19.4±2.8
3	19.2±2.2	47.2±2.7	6.0±0.6	27.6±4.7
3.5	11.2±1.8	41.9±0.8	7.0±0.6	39.9±2.8
4	9.9±2.3	40.5±1.0	6.3±0.3	43.3±3.1

Spin-coated annealed at 140 °C thin films

Time of doping [min]	As	S	O	Ag
0	31.1±0.3	65.0±1.2	3.8±0.8	
0.5	30.0±0.5	63.1±1.7	4.3±0.9	2.7±0.3
1	29.3±0.5	61.1±1.2	4.0±0.8	5.6±0.5
1.5	28.5±0.5	60.1±1.0	3.6±0.3	7.8±0.4
2	28.0±0.4	58.0±1.3	3.7±0.3	10.3±1.1
2.5	26.5±0.6	56.6±1.0	3.8±0.4	13.1±1.4
3	24.0±1.2	52.1±2.0	4.1±0.4	19.8±3.0

Figure S3: The XRF spectra of doping solution before and after doping process without illumination.

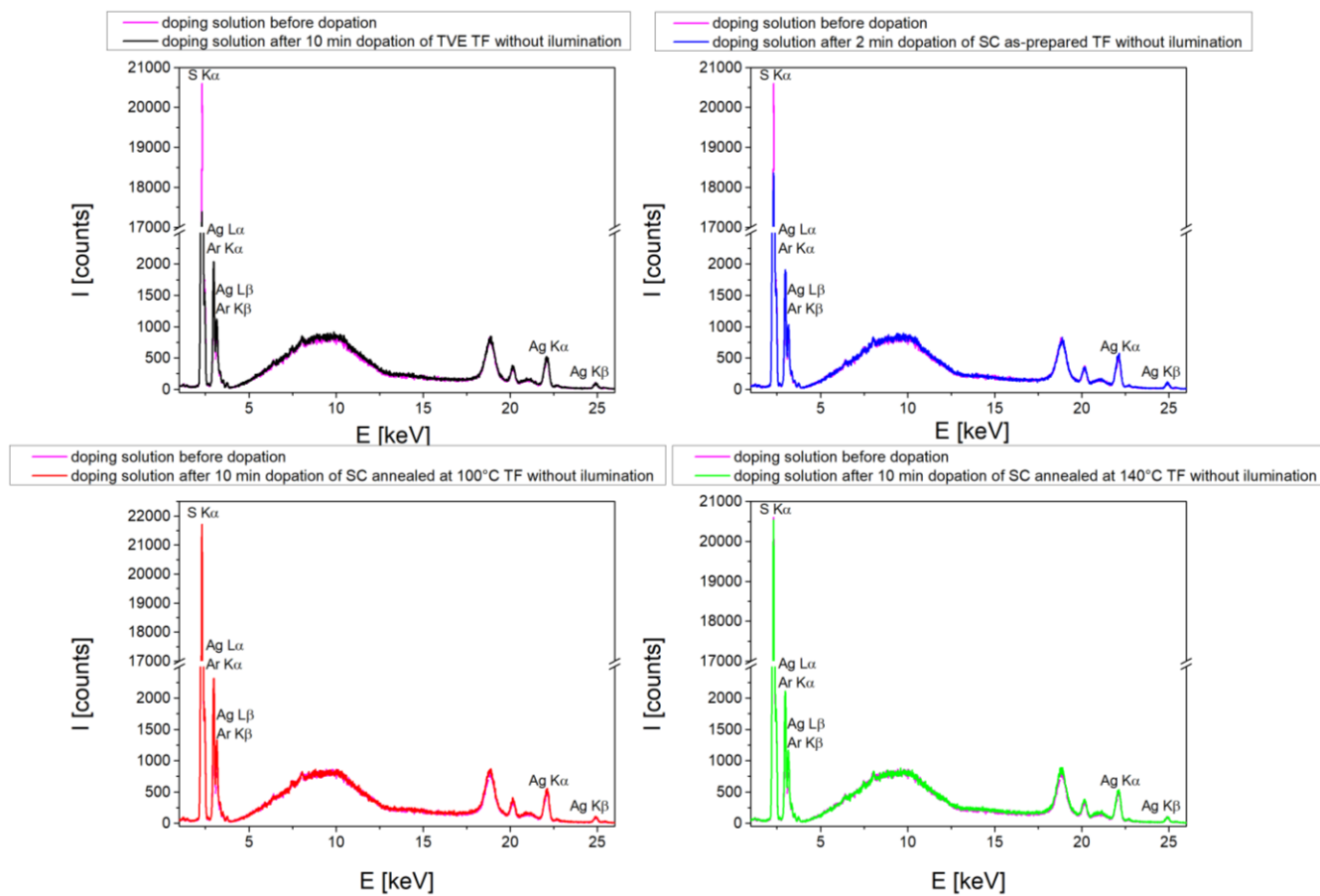


Figure S4: The XRF spectra of doping solution before and after doping process with illumination.

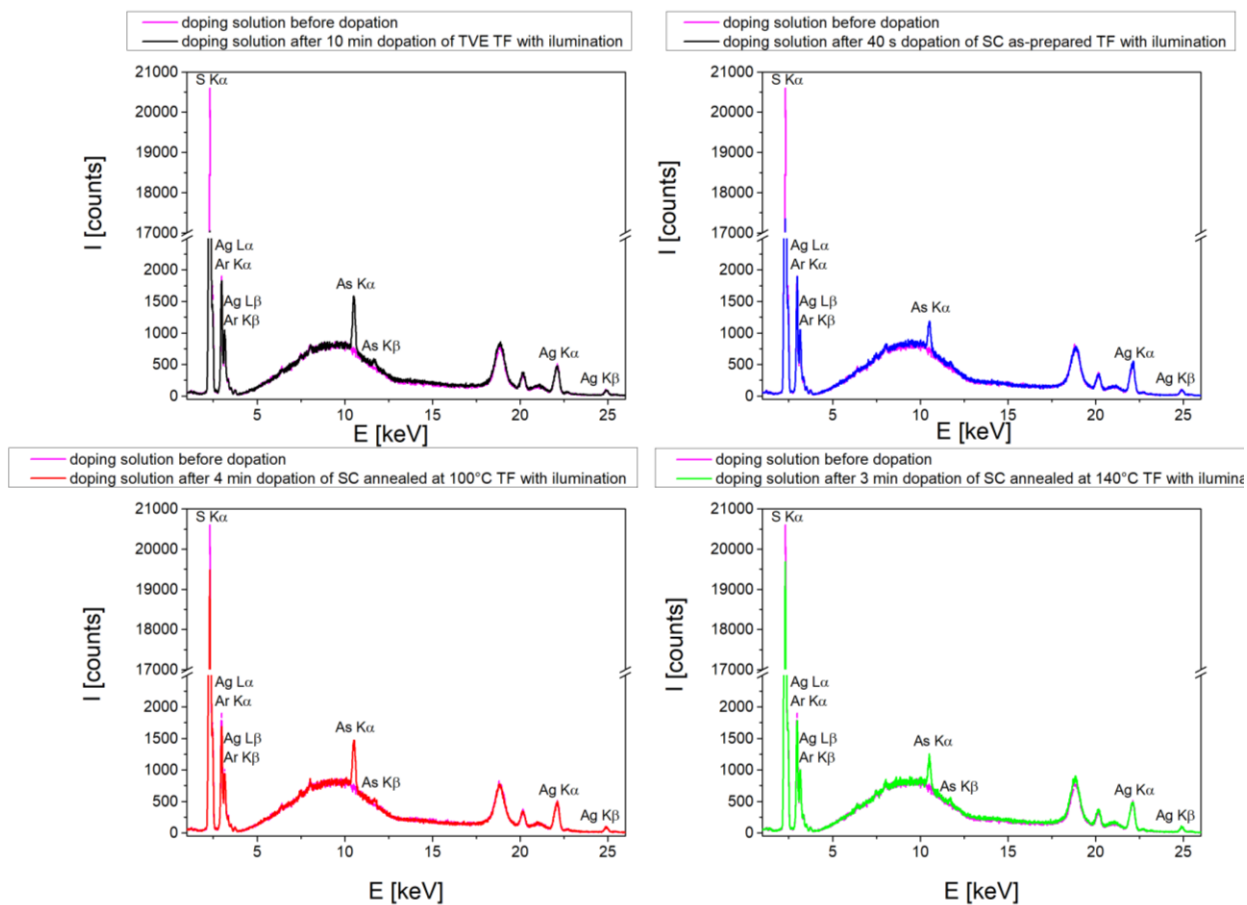


Figure S5: The XRF spectra of DMSO solution before and after submerging of TVE TF.

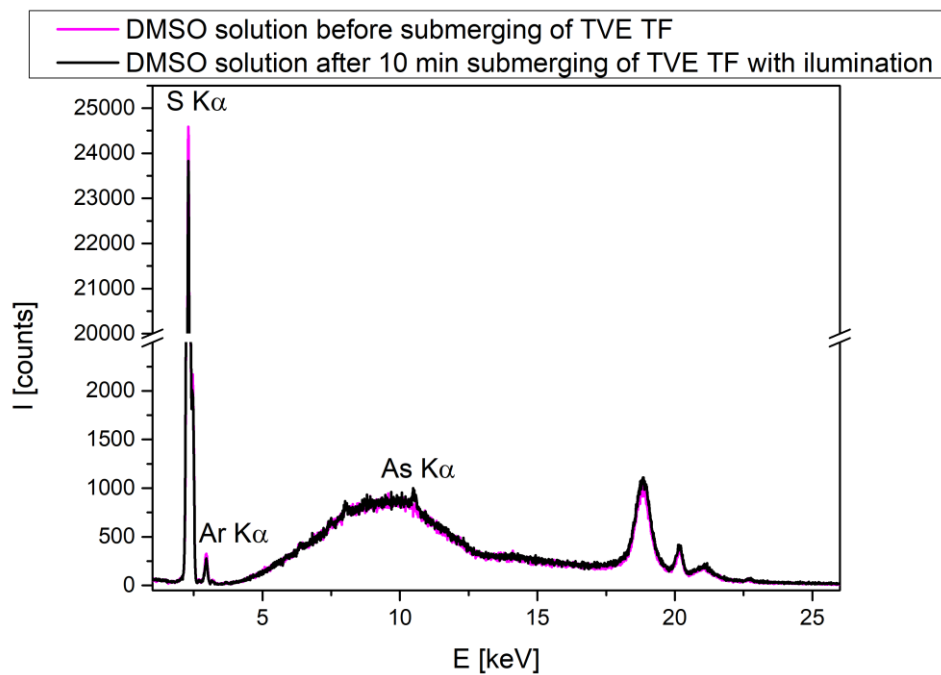
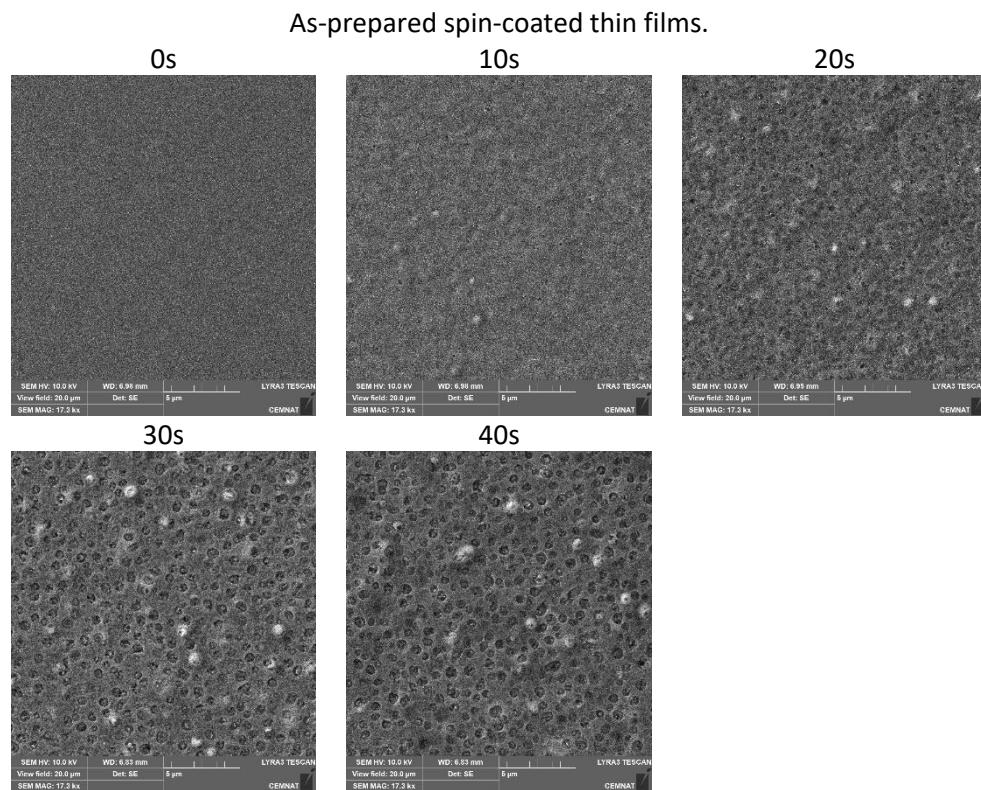
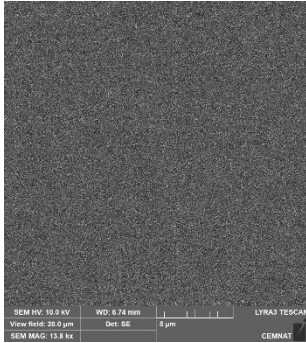


Figure S6: SEM images of studied thin films. Presented times are times of doping by silver ions from solution. Size of images is 20x20  $\mu\text{m}$

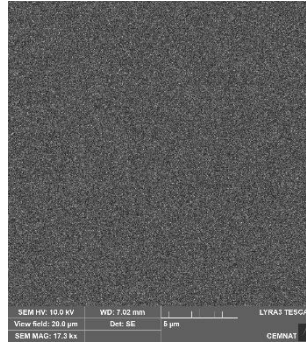


Spin-coated thin films annealed at 100°C.

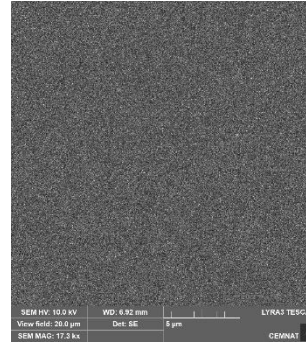
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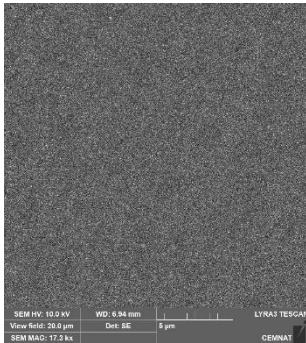
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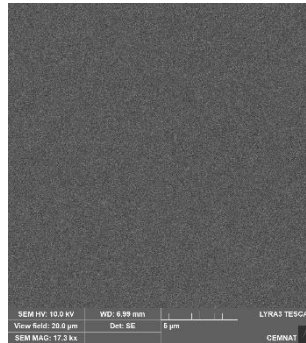
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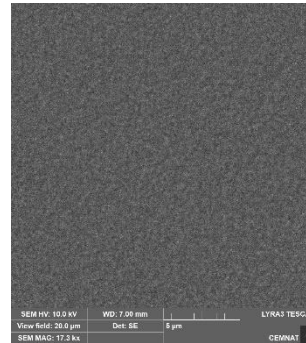
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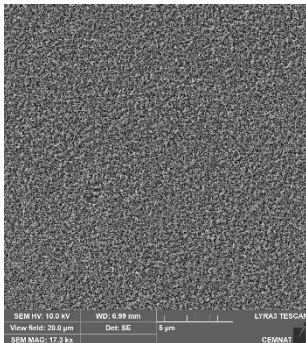
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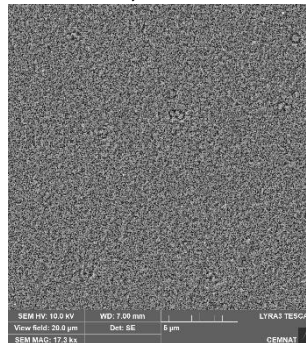
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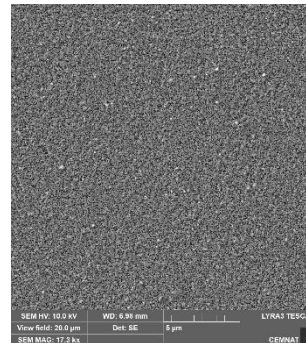
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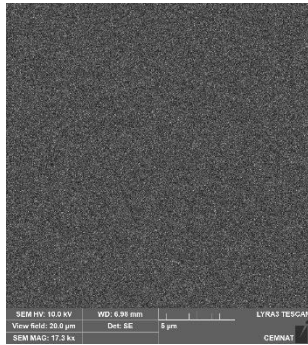


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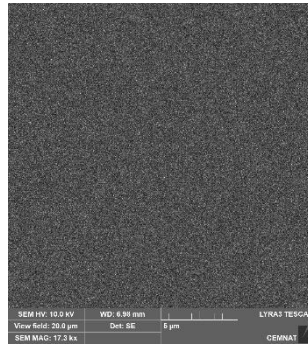


Spin-coated thin films annealed at 140°C.

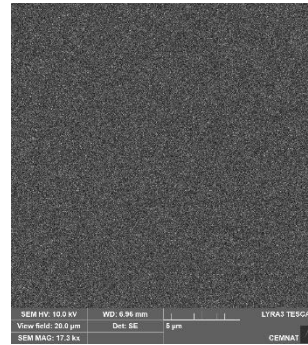
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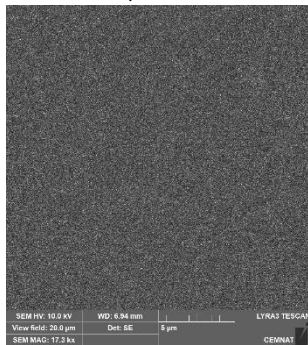
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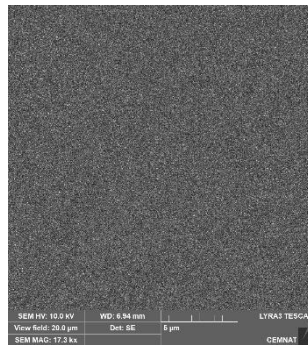
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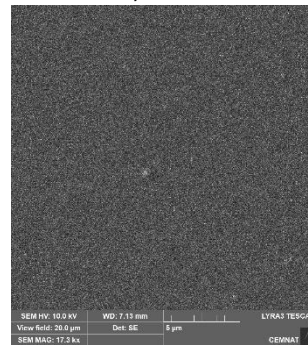
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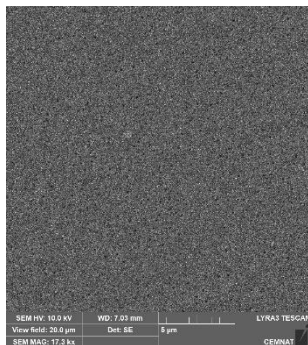
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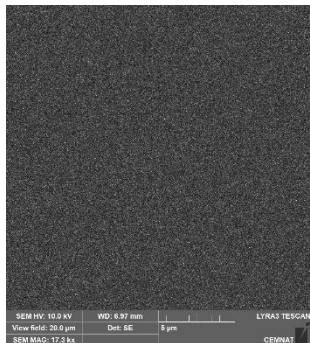


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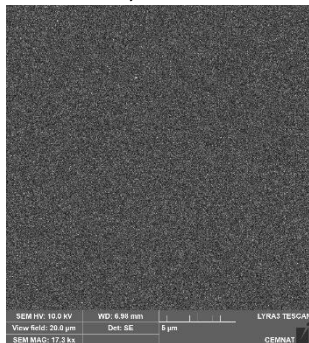


Thermally evaporated thin films.

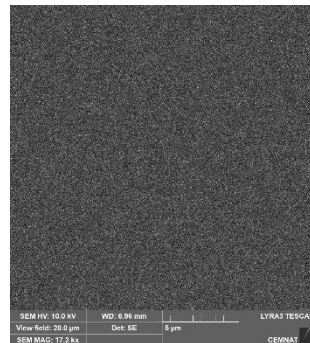
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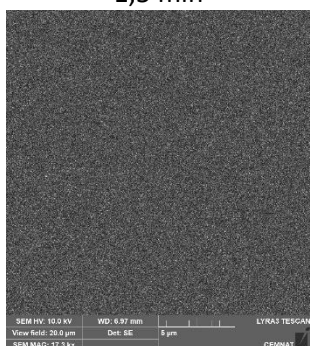
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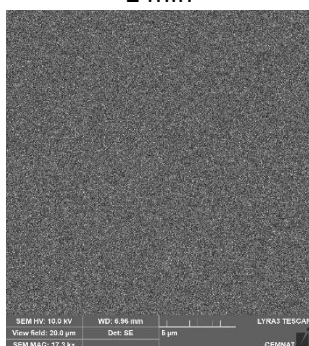
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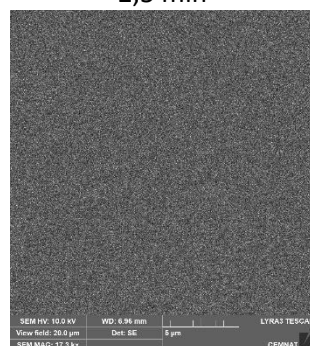
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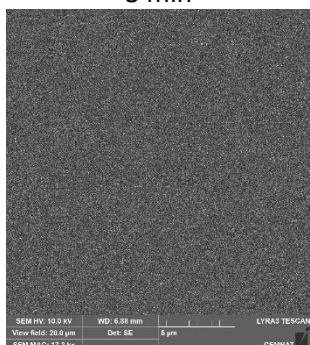
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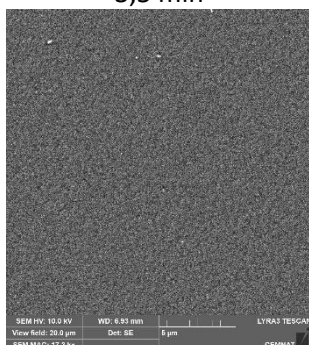
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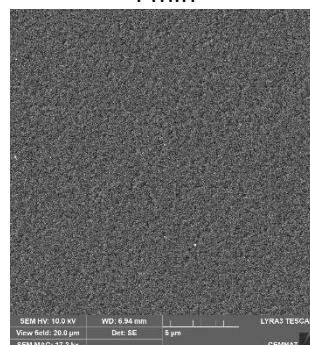
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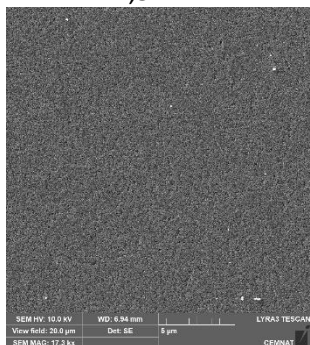
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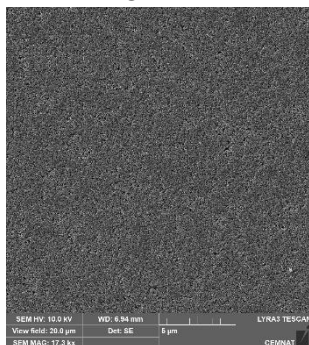
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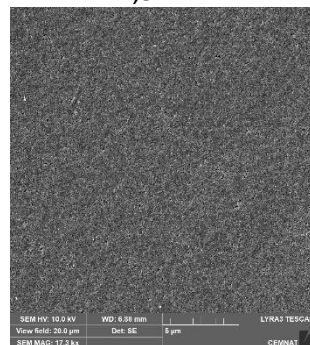
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5 min



7,5 min



10 min

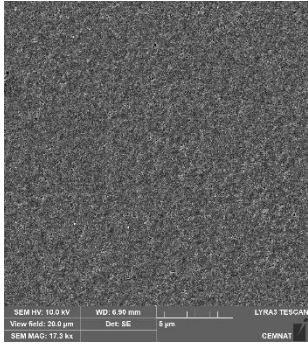
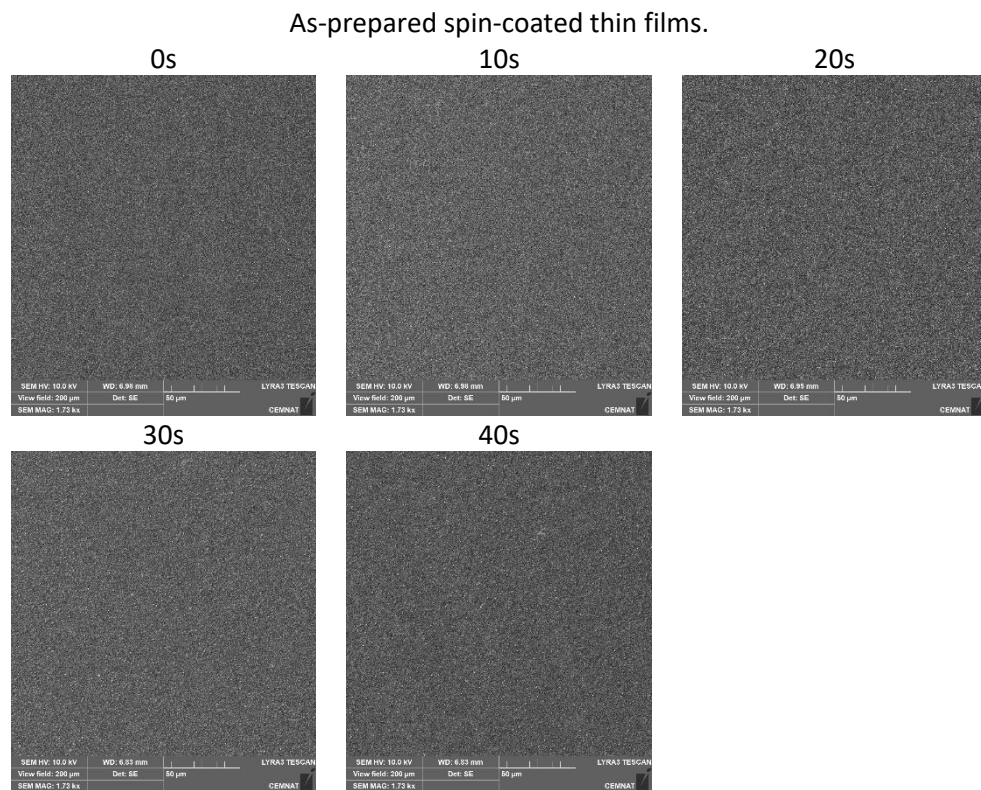
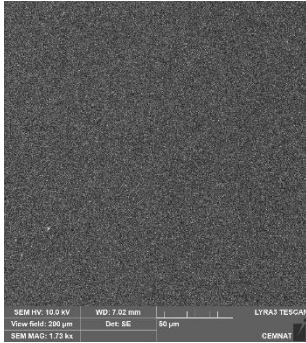


Figure S7: SEM images of studied thin films. Presented times are times of doping by silver ions from solution. Size of images is 200x200  $\mu\text{m}$

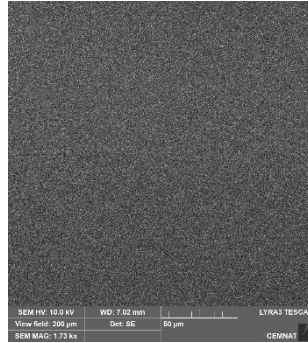


Spin-coated thin films annealed at 100°C.

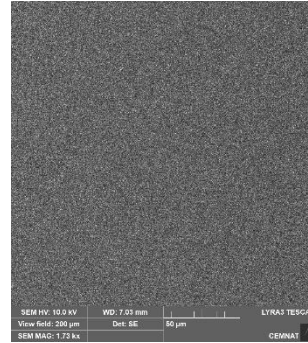
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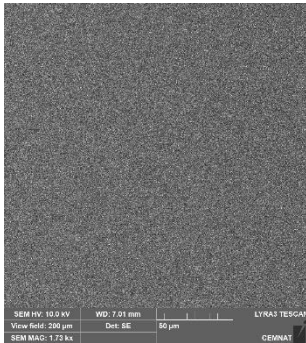
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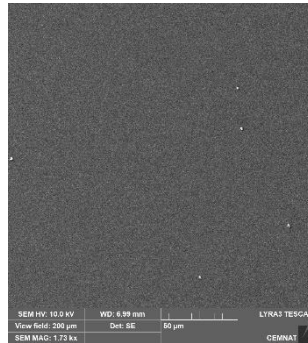
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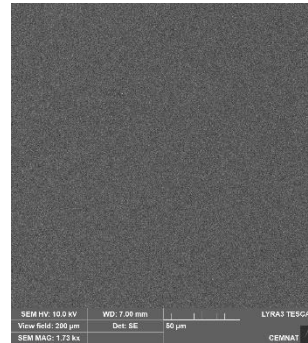
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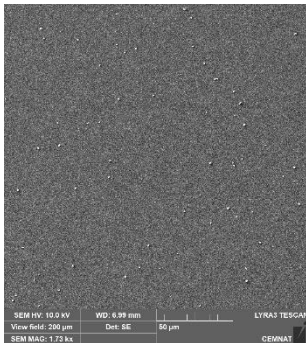
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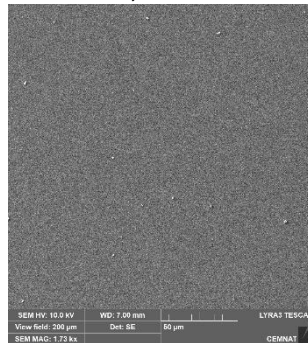
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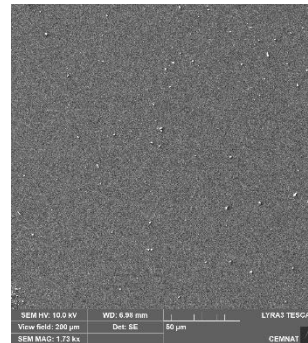
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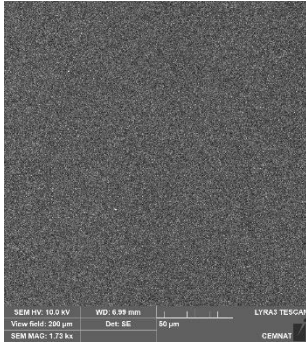


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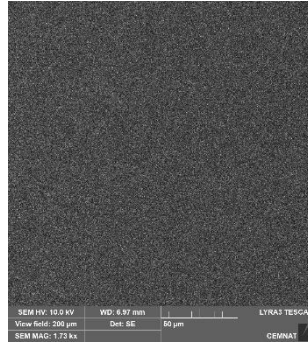


Spin-coated thin films annealed at 140°C.

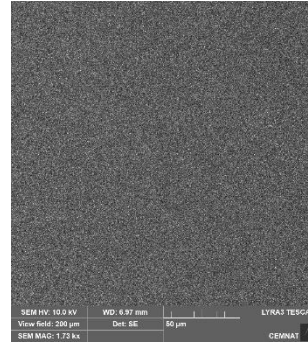
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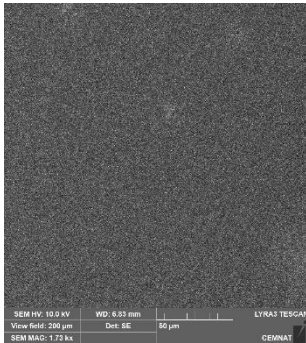
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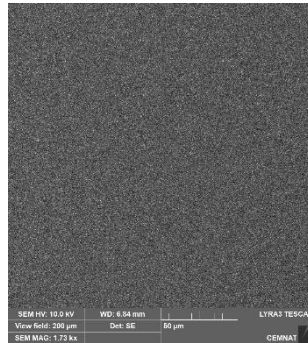
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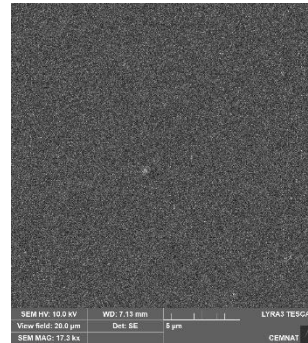
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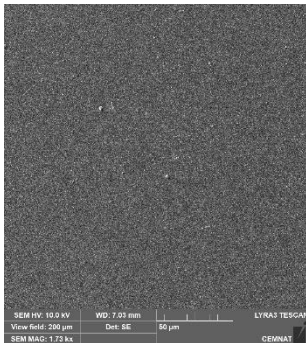
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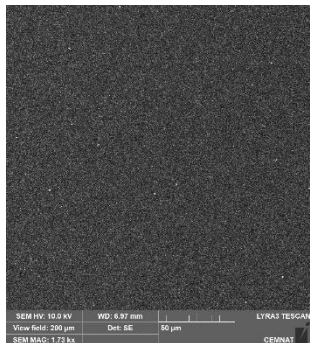


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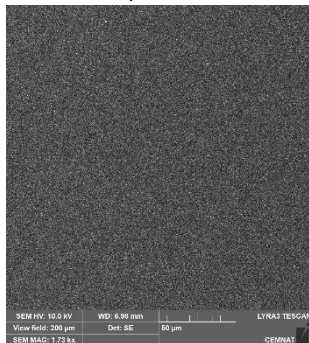


Thermally evaporated thin films.

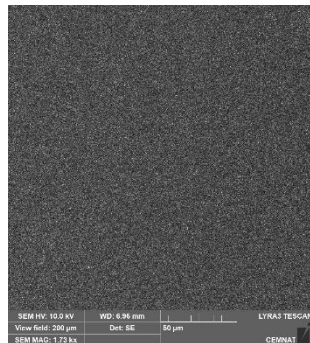
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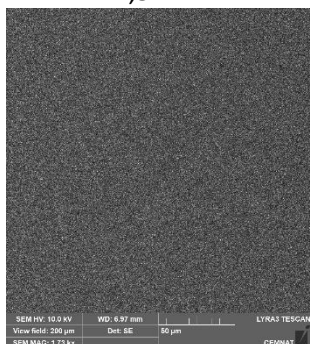
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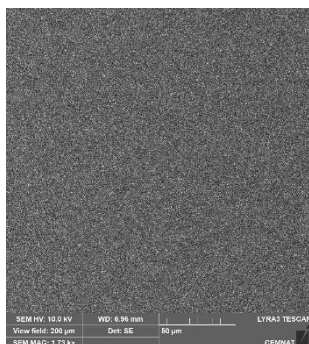
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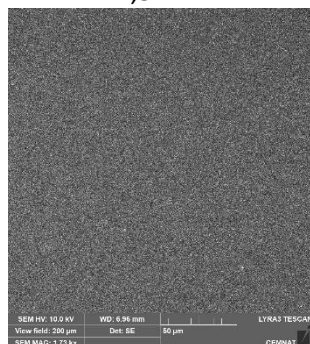
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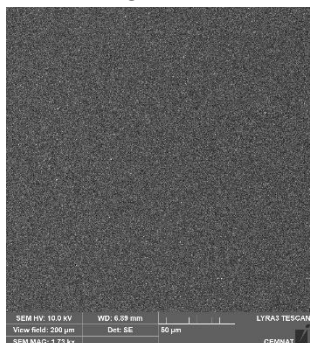
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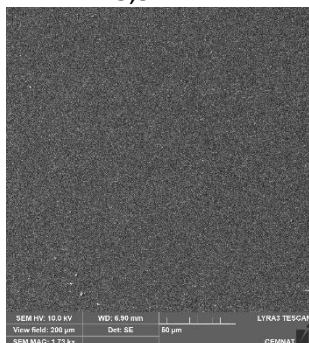
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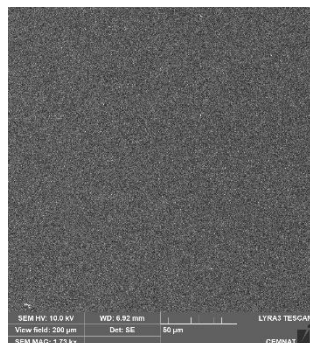
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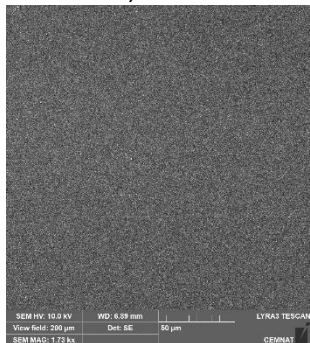
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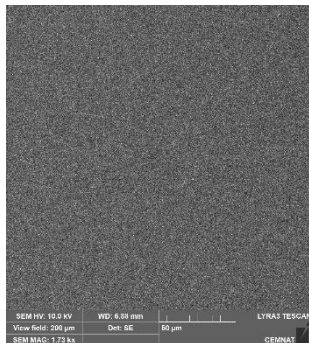
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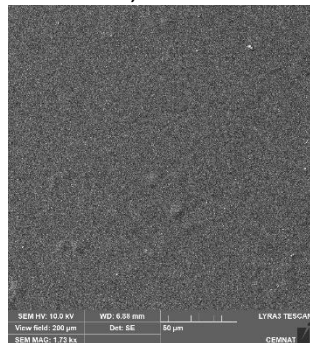
4,5 min



5 min



7,5 min



10 min

