Supporting Information

2D Hexagonal $CuGaSe_2$ Nanosheets by Microwave Assisted Synthesis Method: The Photo Response and Optical Study for Optoelectronic Applications

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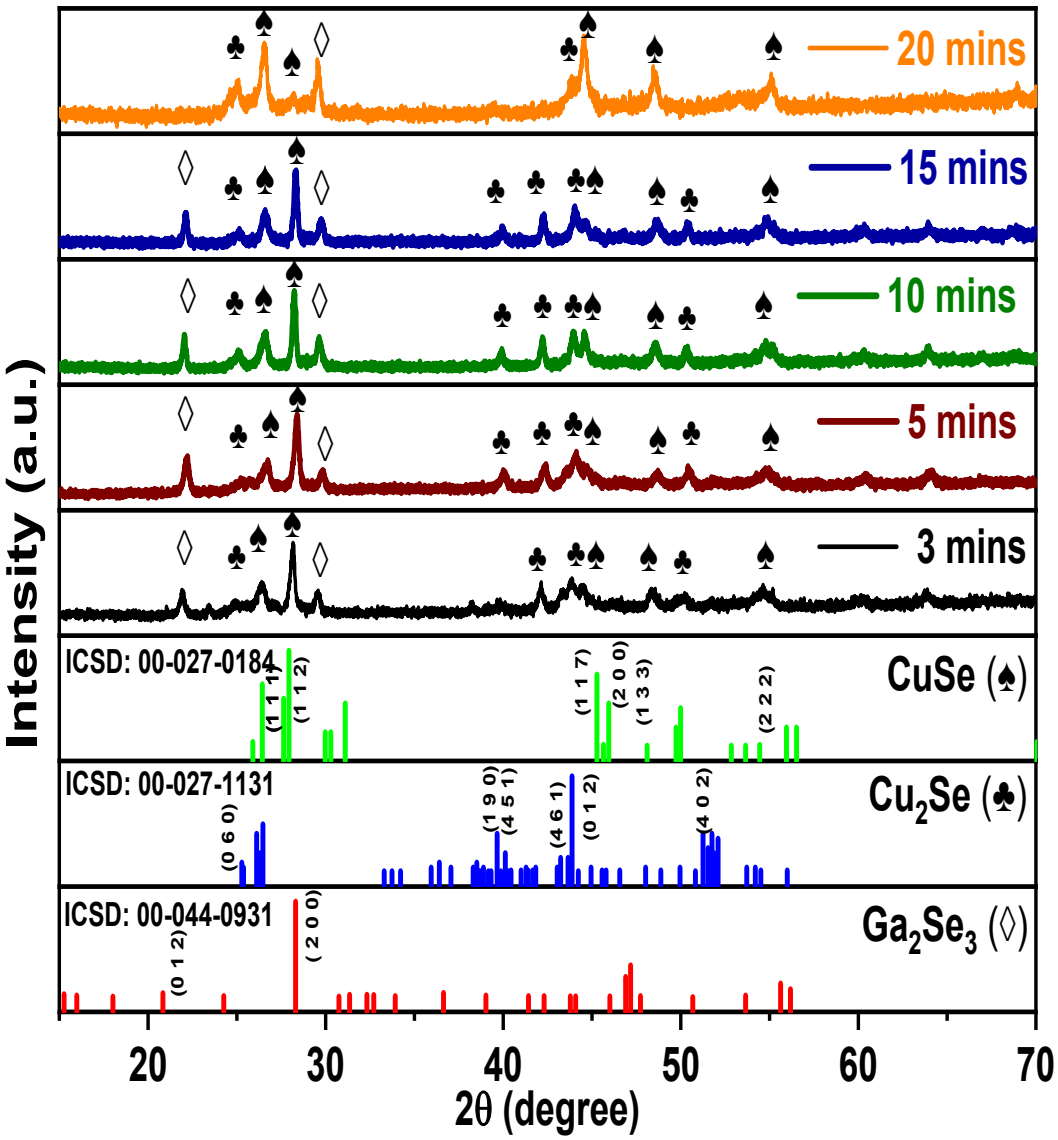

Fig. S1. XRD pattern of CGS with different irradiation time.

Table S1. The variation in positions and FWHM values of CuSe (1 1 2), Cu_2Se (0 6 0), and Ga_2Se_3 (2 0 0) for all samples.

Sample	CuSe (1 1 2)		Cu_2Se (0 6 0)		Ga_2Se_3 (2 0 0)	
	Peak position ($2\theta_{112}$)	FWHM	Peak position ($2\theta_{060}$)	FWHM	Peak position ($2\theta_{200}$)	FWHM
CGS-3mins	27.89	0.34	25.17	0.26	28.20	0.27
CGS-5mins	27.91	0.39	25.19	0.24	28.21	0.29
CGS-10mins	27.92	0.31	25.21	0.25	28.21	0.28
CGS-15mins	27.91	0.41	25.20	0.27	28.25	0.31
CGS-20mins	27.93	0.37	25.23	0.26	28.23	0.32

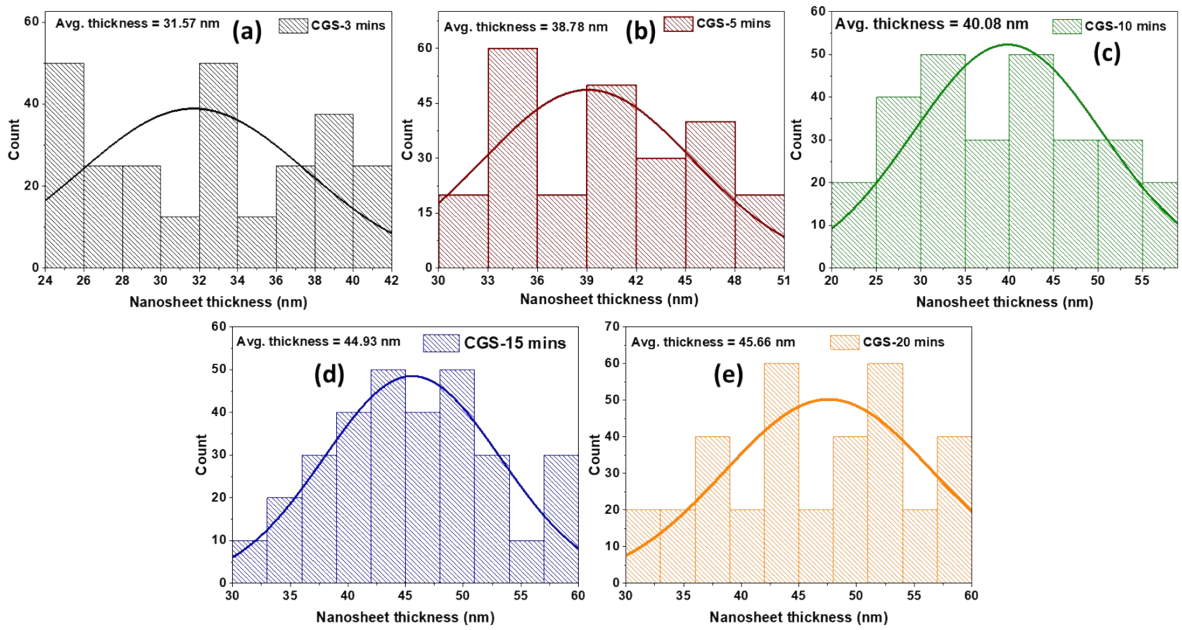

Fig. S2. Nanosheet thickness variation of CGS with different irradiation time.

Table S2. The composition analysis table of irradiation varied CGS NS.

Sample	**CGS-3mins**			**CGS-20mins**		
Elements	**EDX**	**XPS**	**ICP-OES**	**EDX**	**XPS**	**ICP-OES**
Cu	25.01	24.66	24.56	25.21	25.11	24.76
Ga	24.78	24.59	24.33	25.54	24.97	24.34
Se	50.21	50.75	51.11	49.25	49.92	50.90
Total	100	100	100	100	100	100

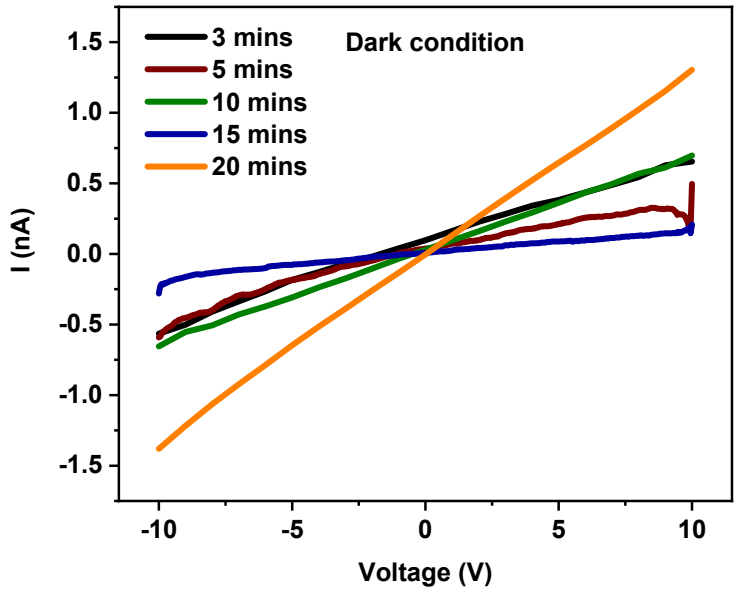

Fig. S3. Cumulative current-voltage curve of CGS NS under dark conditions.

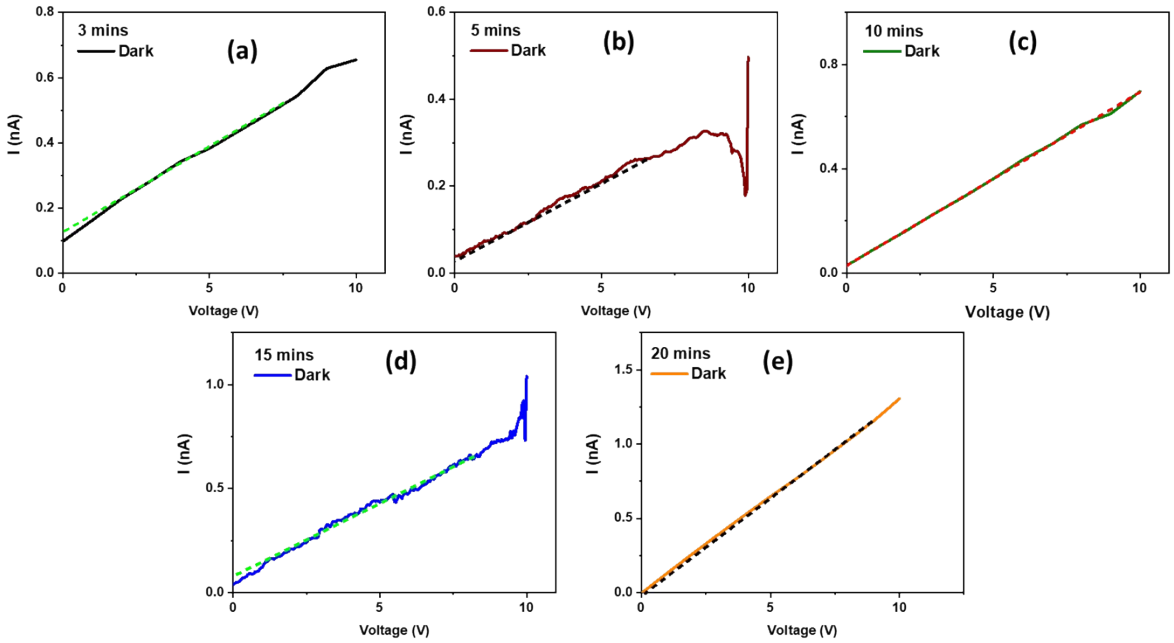

Fig. S4. Resistance evaluation in dark conditions for all studied samples.