Kilogram-scale high yield production of PbI_2 microcrystals for optimized photodetector

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Fig. S1. The photograph of PbI_2 production at kilogram class.

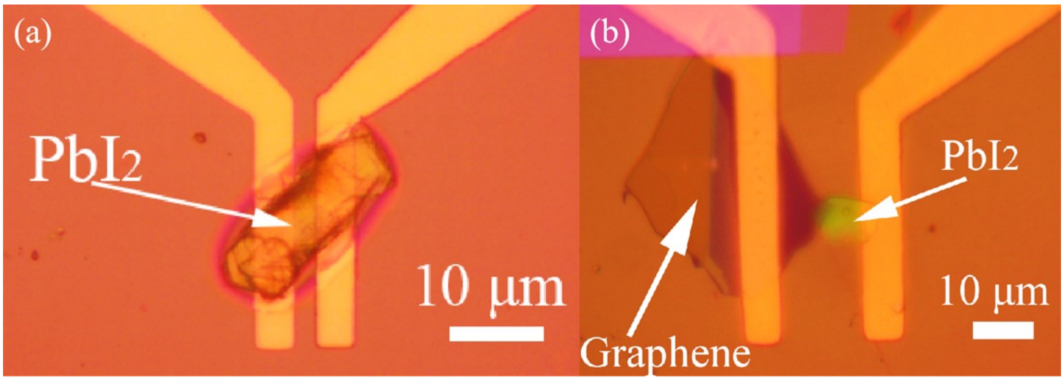

Fig. S2. The optical images of a) Au-PbI_2-Au and b) Au-PbI_2-Graphene photodetectors.

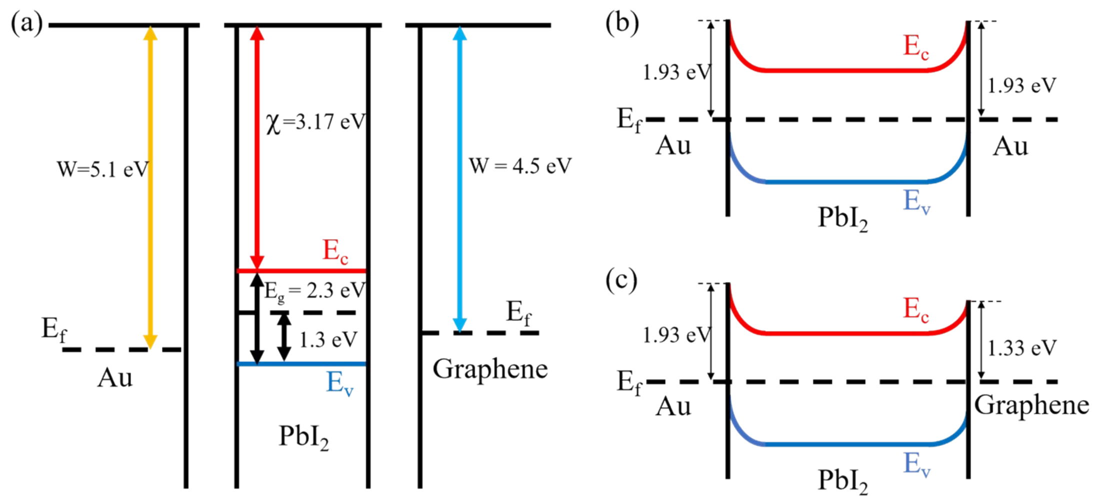

Fig. S3. a) The energy levels of Au, PbI_2, and Graphene relative to vacuum level; The schematic energy diagrams of the b) Au-PbI_2-Au and c) Au-PbI_2-Graphene photodetectors under equilibrium condition at 0 V.

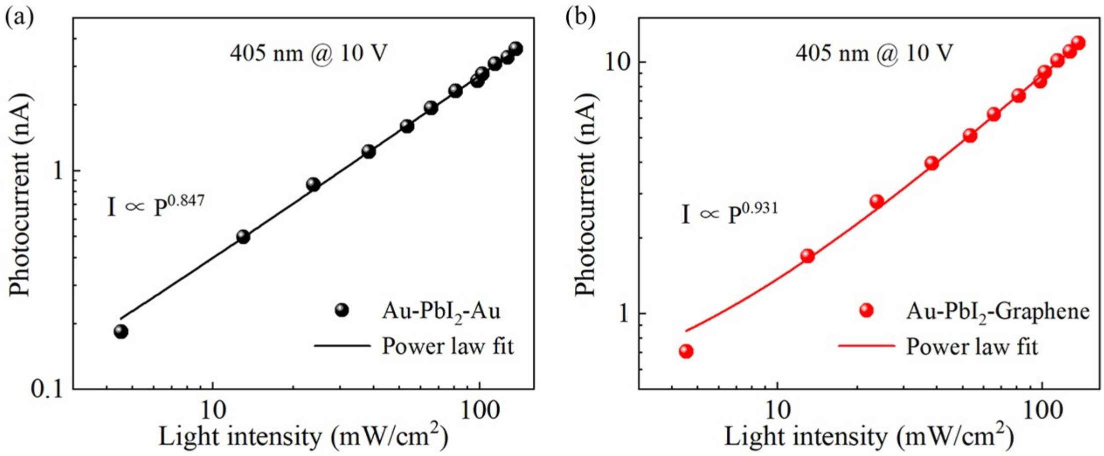

Fig. S4. The light-intensity-dependent photocurrents of the a) Au-PbI_2-Au and b) Au-PbI_2-Graphene devices.

Table S1. The performance parameters of PbI_2 based photodetectors.

Morphology	Bias (V)	On/off ratio	Rise/decay time	Responsivity (A/W)	Detectivity (Jones)	Ref.
Microcrystal	10	13435	31 ms/31 ms	0.314	3.23×10^{11}	This work
Nanosheet	5	900	13.5 ms/20 ms	0.72	1.04×10^{10}	S1
Nanosheet	10	-	-	0.0013	-	S2
Single crystal	10	14700	323 μs/ 520 μs	0.18	3.23×10^{11}	S3
Nanosheet	5	42	86 /150 ms	0.41	3.1×10^{11}	S4
Single crystal	15	519	354 ms/-	11.3	-	S5
Nanosheet	1.9	-	55 μs/110 μs	0.0001	-	S6
Nanosheet	5	1371	161.7 ms/192.1ms	0.04	3.31×10^{10}	S7
Nanoflakes	5	-	14.1 ms/31ms	0.51	4.0×10^{10}	S8
Nanobelt	5	1000	425 ms/41 ms	0.013	-	S9

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