Electronic Supplementary Material (ESI) for RSC Advances.


# Supporting Information for

# Multi-layers $MoS_2$ phototransistors as high performance photovoltaic cells and self-powered photodetectors

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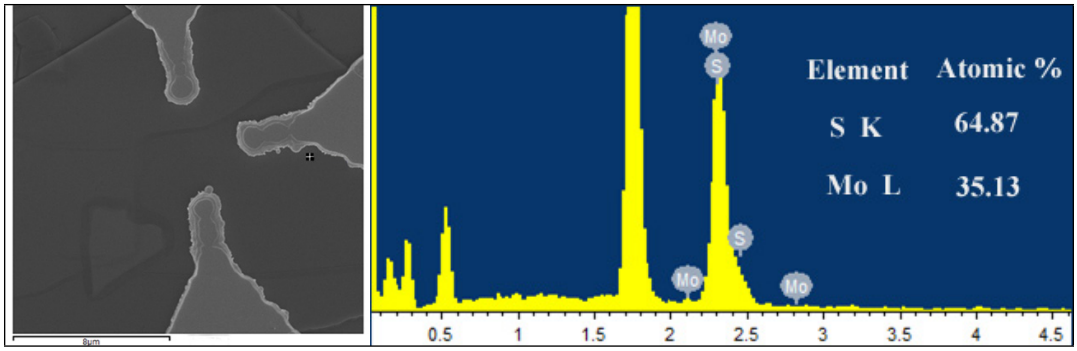
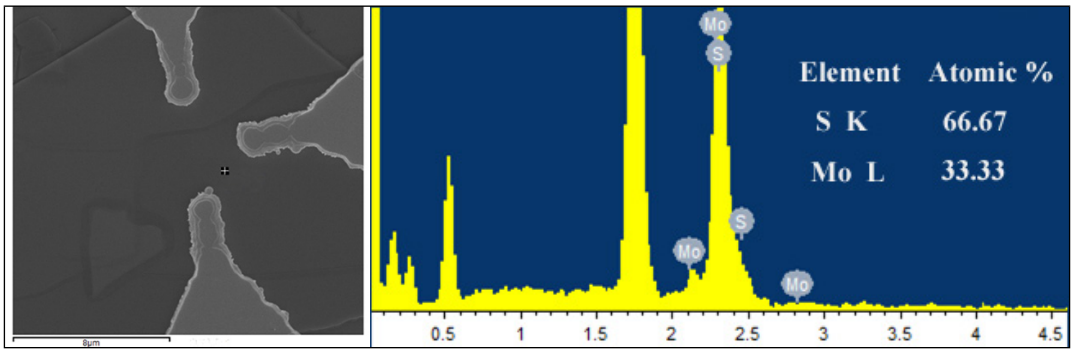

Mo
S
Element Atomic %
S K 64.87
Mo L 35.13
0.5 1 1.5 2 2.5 3 3.5 4 4.5


Mo
S
Element Atomic %
S K 66.67
Mo L 33.33
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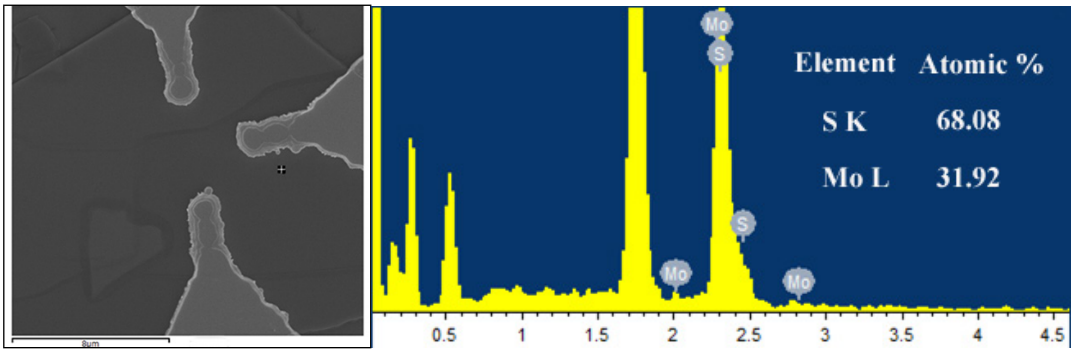
Mo
S
Element Atomic %
S K 68.08
Mo L 31.92
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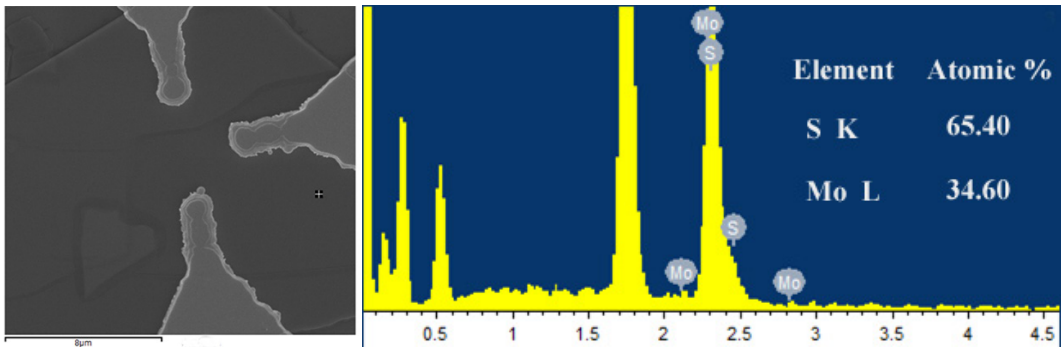
Mo
S
Element Atomic %
S K 65.40
Mo L 34.60
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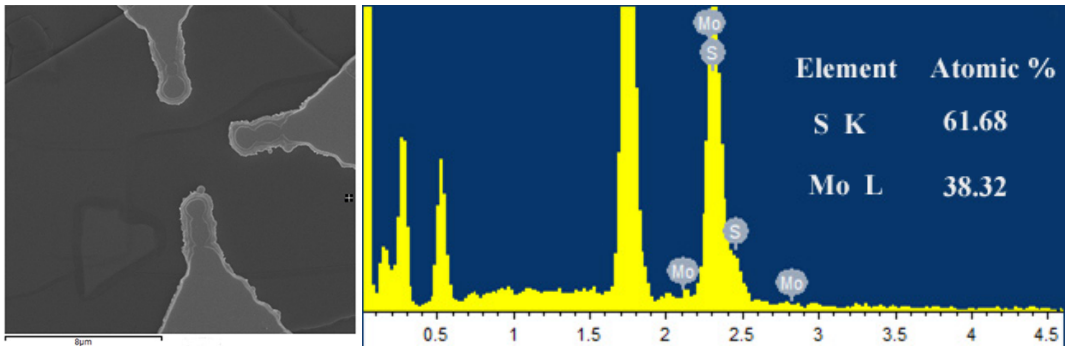
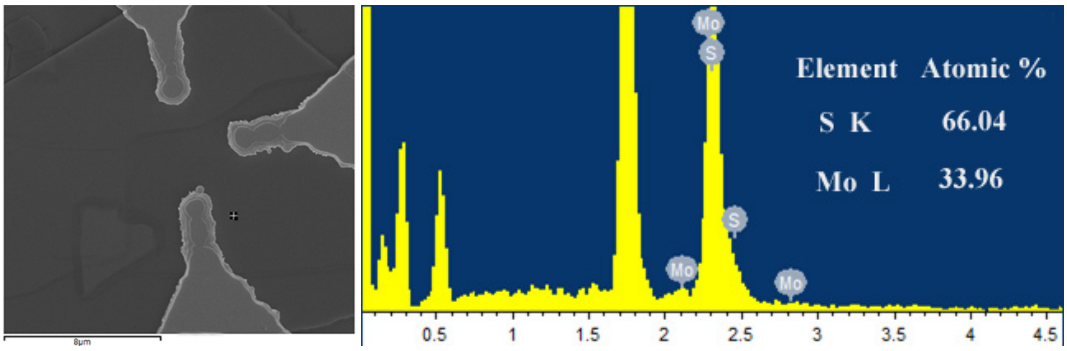
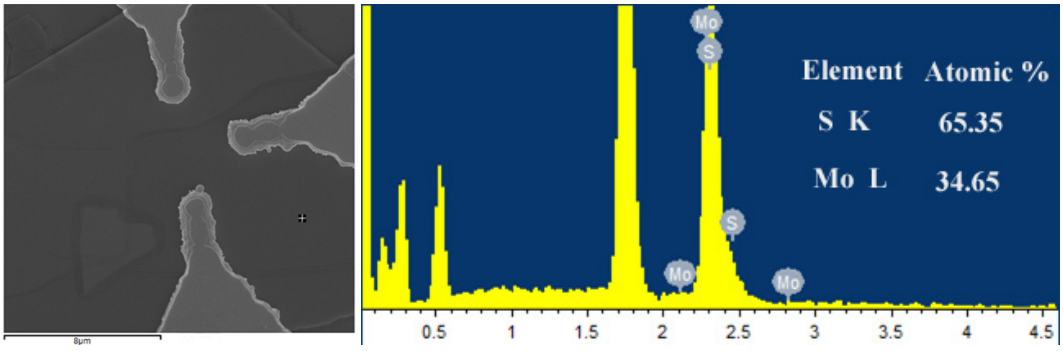
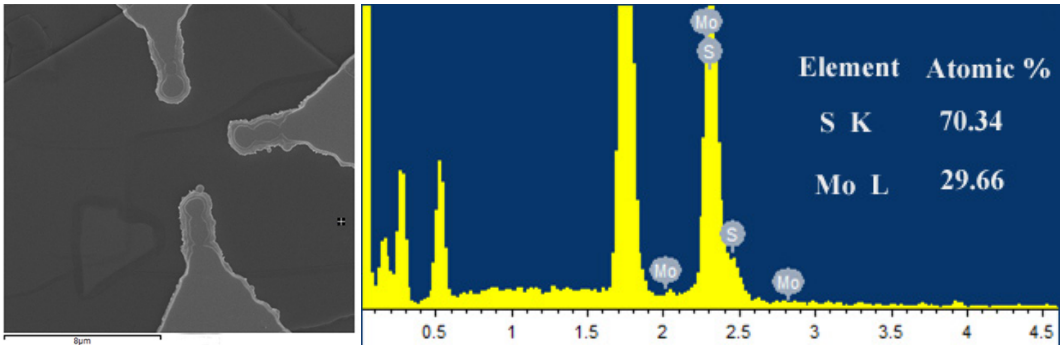

Mo
S
Element Atomic %
S K 61.68
Mo L 38.32
0.5 1 1.5 2 2.5 3 3.5 4 4.5


Element Atomic %
S K 66.04
Mo L 33.96
Mo
S
0.5 1 1.5 2 2.5 3 3.5 4 4.5


Element Atomic %
S K 65.35
Mo L 34.65
Mo
S
0.5 1 1.5 2 2.5 3 3.5 4 4.5


Element Atomic %
S K 70.34
Mo L 29.66
Mo
S
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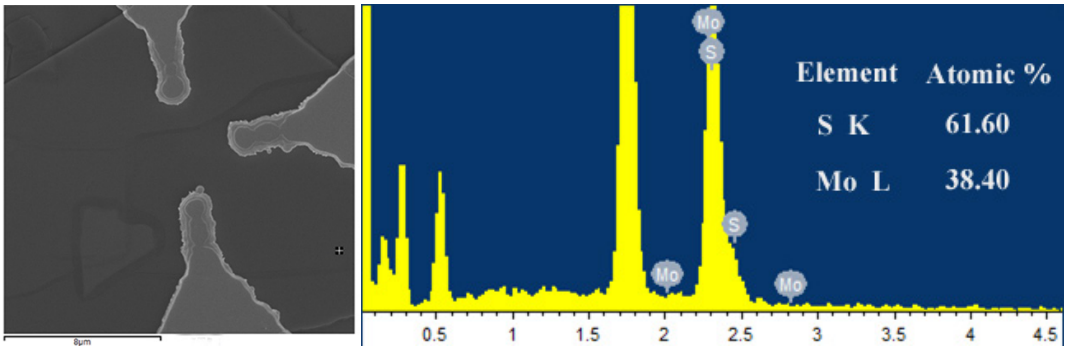
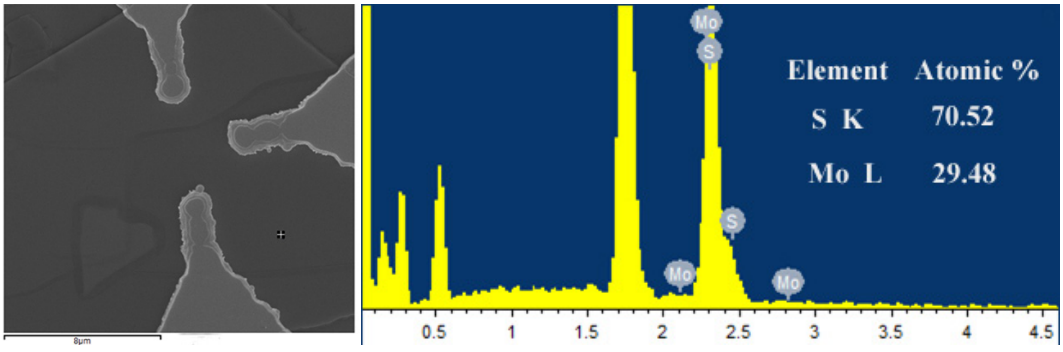

Element Atomic %
S K 61.60
Mo L 38.40
Mo
S
0.5 1 1.5 2 2.5 3 3.5 4 4.5


Element Atomic %
S K 70.52
Mo L 29.48
Mo
S
0.5 1 1.5 2 2.5 3 3.5 4 4.5

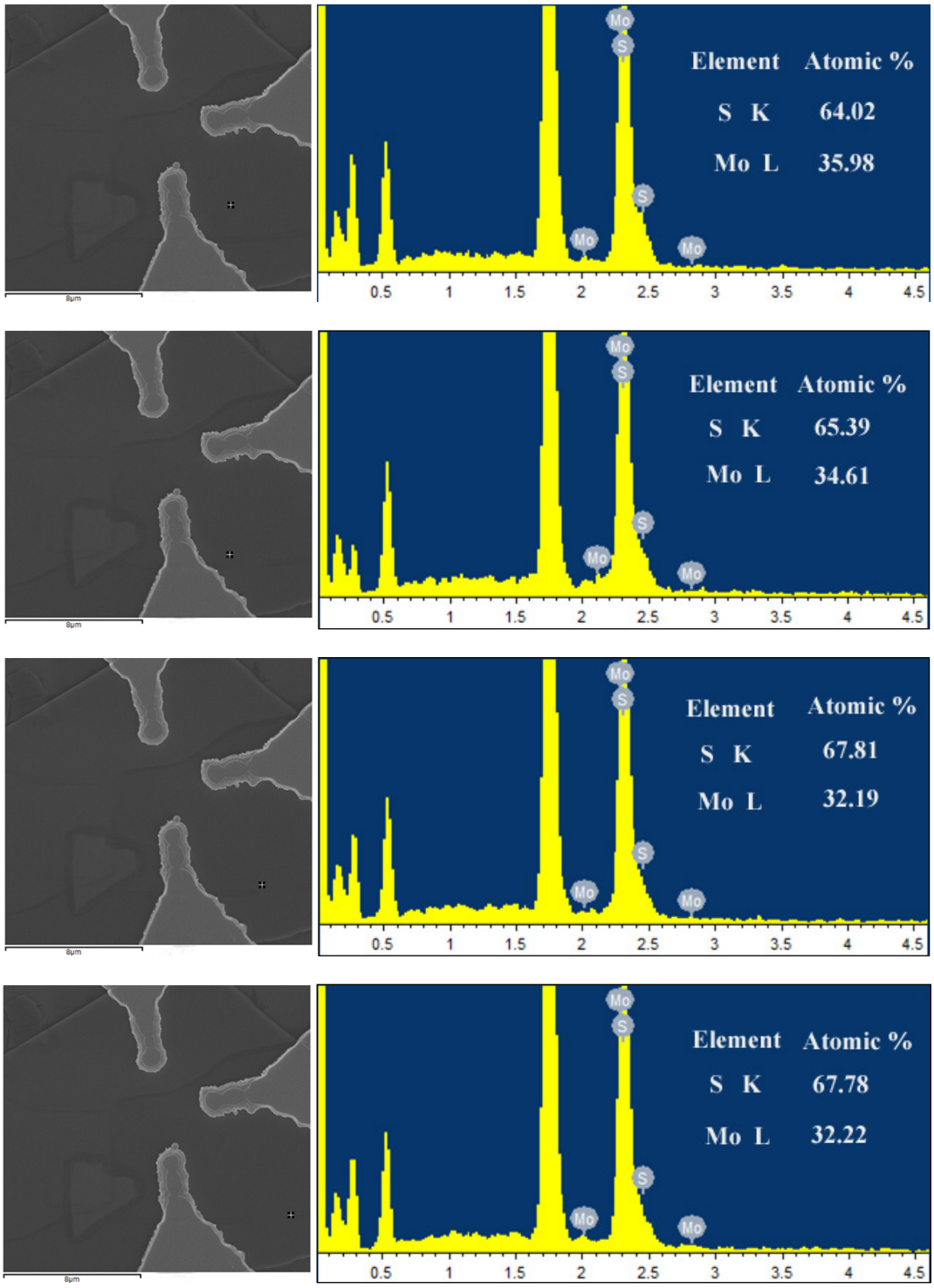



Fig. S1 EDS of multi-layer $MoS_2$. Left panel indicates the collection position (see the movement of mark "+"). Right panel indicates the corresponding EDS spectrum and atomic percentage.

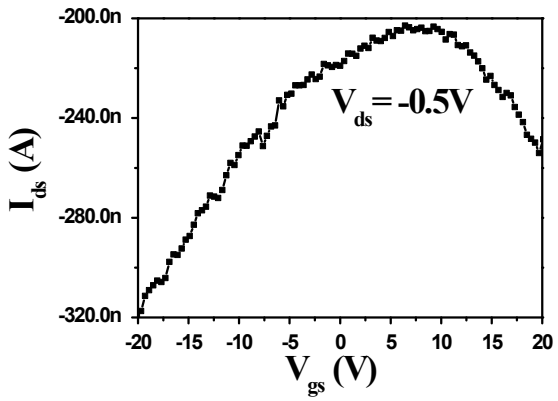



Fig. S2 The transfer curve at large negative bias voltage (-0.5V) under dark condition.

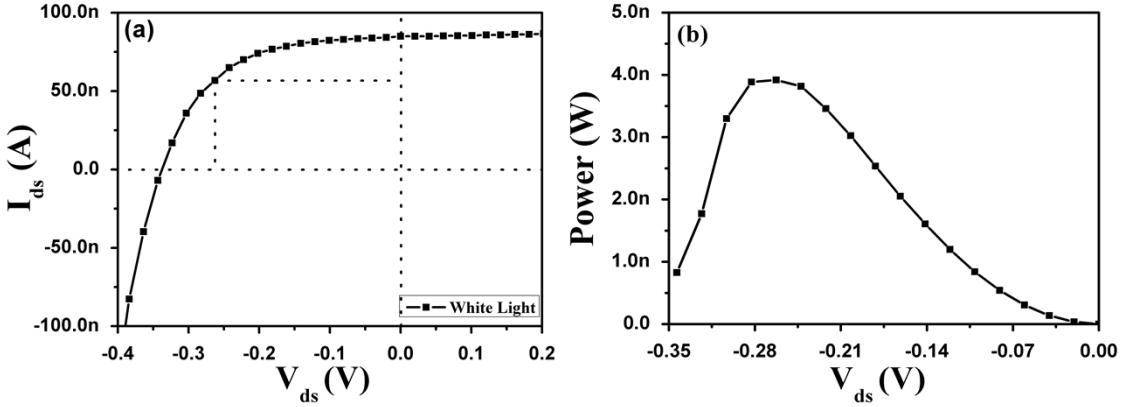



Fig. S3 (a) $I_{ds}$-$V_{ds}$ of multi-layer $MoS_2$ device under illumination of a commercial white light LED with 1 W power. (b) Electrical power $P_{el}=I_{ds}\times V_{ds}$ as a function of $V_{ds}$.

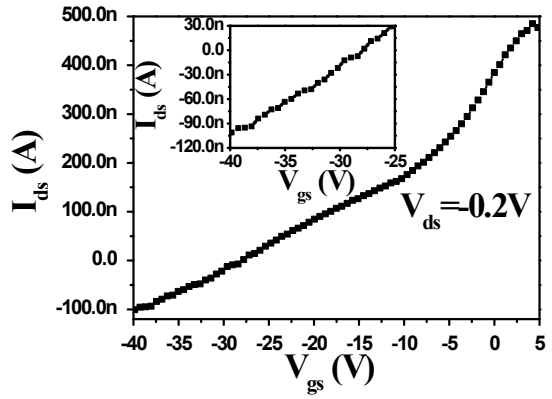



Fig. S4 The transfer curve at large negative bias voltage (-0.2V) under green illumination.

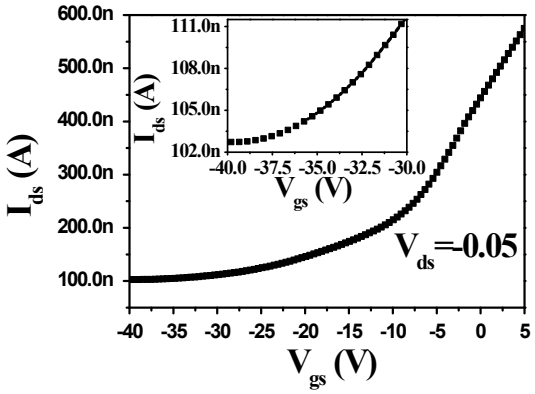



Fig. S5 The transfer curve at $V_{ds}$=-0.05 V under red illumination.