

## Supporting Information

# Reconfigurable carrier type and photodetection of MoTe<sub>2</sub> of various thickness by deep ultraviolet light illumination

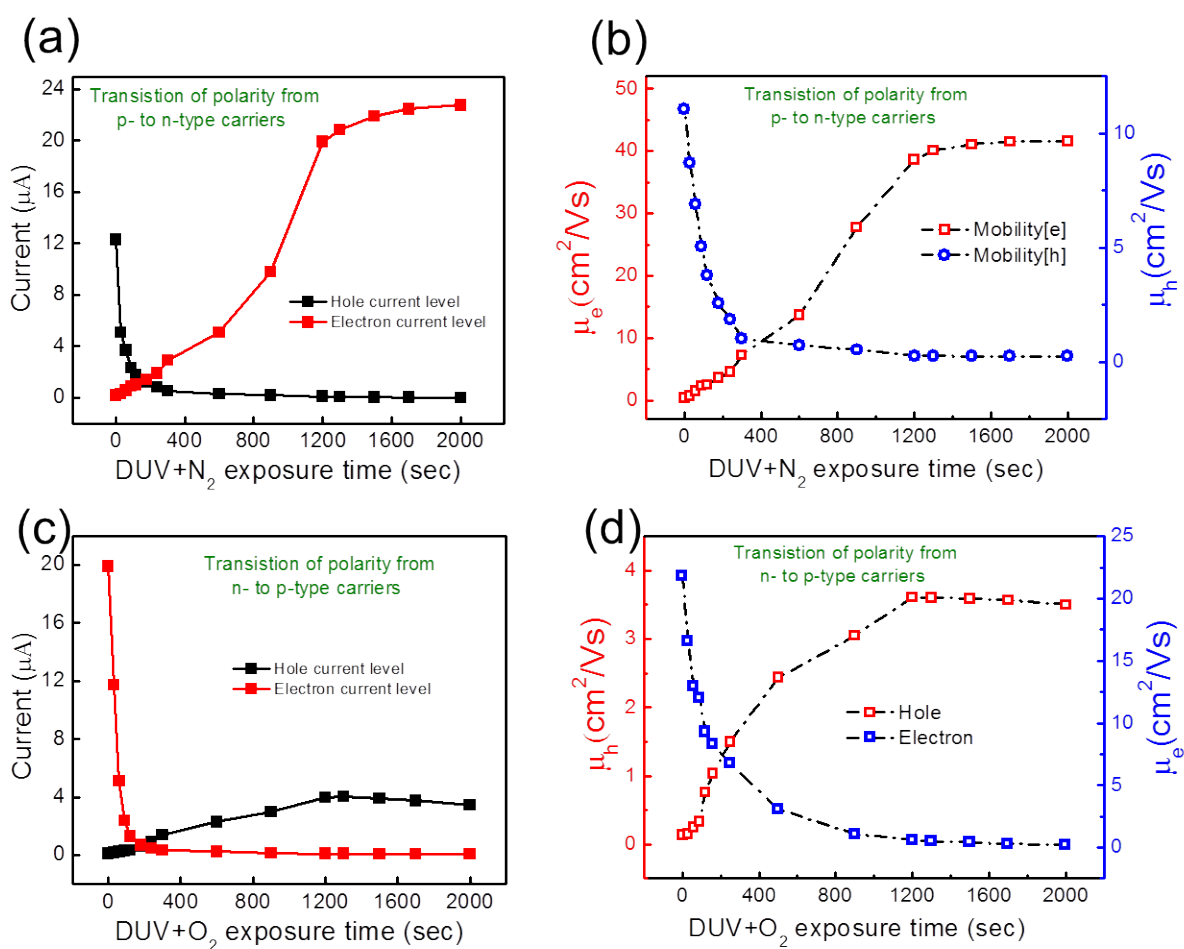
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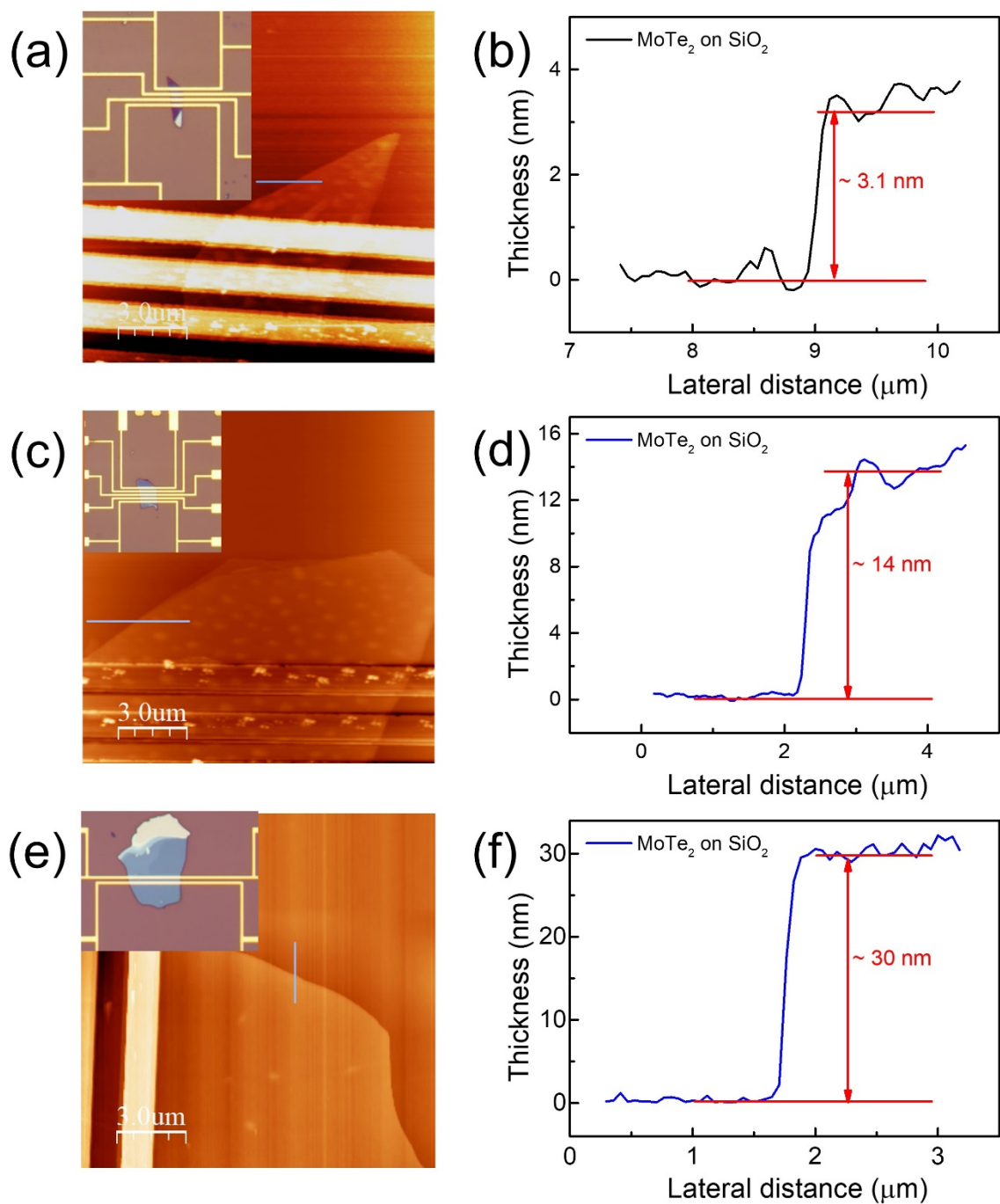
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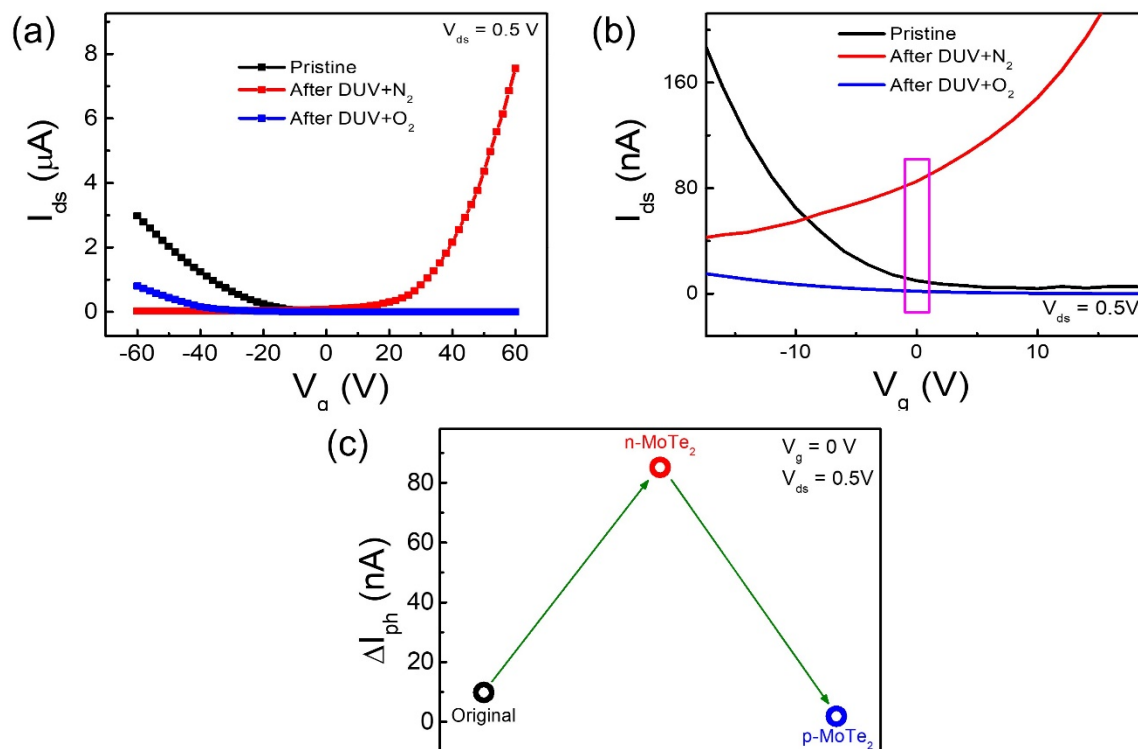
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**Figure S1.** (a) Electron and hole current values at  $V_g = 60$  V with different DUV+N<sub>2</sub> treatment times. (b) Electron and hole mobility at different DUV+N<sub>2</sub> treatment times. (c) Electron and hole current values at  $V_g = 60$  V with different DUV+O<sub>2</sub> treatment times. (d) Electron and hole mobility at different DUV+O<sub>2</sub> treatment times.



**Figure S2.** The AFM images and thickness profiles of different MoTe<sub>2</sub> flakes **(a)** AFM image of 3.1-nm-thick flake. **(b)** Height profile of 3.1 nm. **(c)** AFM image of 14-nm-thick flake. **(d)** Height profile of 14 nm. **(e)** AFM image of 30-nm-thick flake. **(f)** Height profile of 30 nm.



**Figure S3.** (a) Transfer curves of another pristine p-MoTe<sub>2</sub>, n-MoTe<sub>2</sub> after DUV+N<sub>2</sub> treatment and p-MoTe<sub>2</sub> after DUV+O<sub>2</sub> treatment. (b) Zoom-in view to see the current value at  $V_g = 0\text{ V}$ . (c) photocurrent generation of pristine p-MoTe<sub>2</sub>, n-MoTe<sub>2</sub> after DUV+N<sub>2</sub> treatment and p-MoTe<sub>2</sub> after DUV+O<sub>2</sub> treatment.