

# Supplementary Materials

## MoTe<sub>2</sub> Field-Effect Transistors with Low Contact Resistance through Phase Tuning by Laser Irradiation

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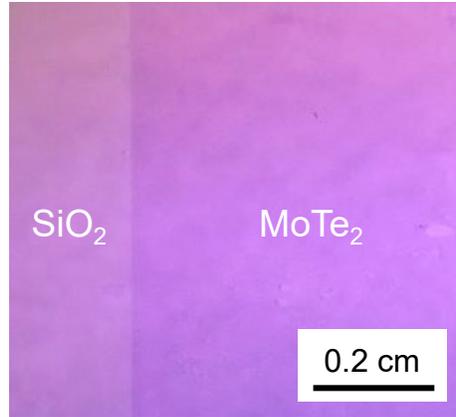
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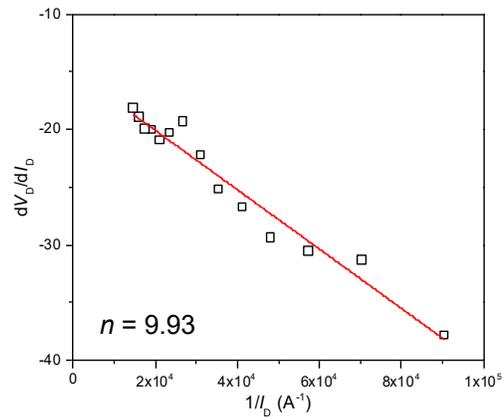
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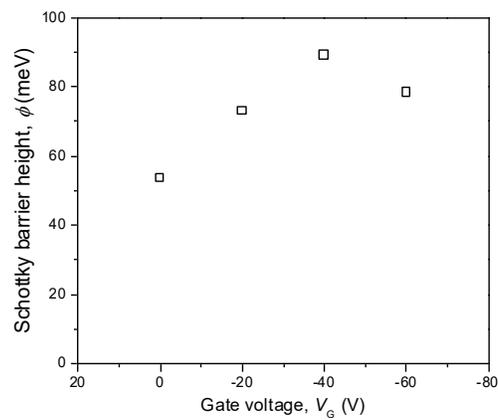
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**Figure S1.** Optical image of the CVD-grown MoTe<sub>2</sub> on the SiO<sub>2</sub>/Si substrate.



**Figure S2.** Plot of  $dV_D/dI_D$  as a function of  $1/I_D$  of MoTe<sub>2</sub> FETs at gate voltage ( $V_G$ ) of -60 V.



**Figure S3.** Schottky barrier height of MoTe<sub>2</sub> FETs without laser irradiation.

**Table S1.** Comparison of the field-effect transistors performances.

	<b>Method</b>	<b>Mobility (cm<sup>2</sup>/V<sup>-1</sup>s<sup>-1</sup>)</b>	<b>On current (mA)</b>	<b>on/off ratio (a. u.)</b>
Our work	Laser irradiation	16.1	3.1	>10 <sup>5</sup>
J. Hwang et al. [S1]	Sputtering	8.2	3.1x10 <sup>-3</sup>	>10 <sup>4</sup>
J. Huang et al. [S2]	Thermal annealing	~10	7.3x10 <sup>-4</sup>	>10 <sup>5</sup>

## References

S1. J. Huang, H. Hsu, D. Wang, W. Lin, C. Cheng, Y. Lee, T. Hou, Polymorphism Control of Layered MoTe<sub>2</sub> through Two-Dimensional Solid-Phase Crystallization, *Scientific Reports*, 9 (2019) 8810.

S2. J. Huang, K. Deng, P. Liu, C. Wu, C. Chou, W. Chang, Y. Lee, T. Hou, Large-Area 2D Layered MoTe<sub>2</sub> by Physical Vapor Deposition and Solid-Phase Crystallization in a Tellurium-Free Atmosphere, *Advanced Materials Interfaces*, 4 (2017) 1700157.