Abstract Submitted
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Electrical Transport of Field-Effect Transistors Based on CVD Grown Two-Dimensional Layered Materials[1] MING-WEI LIN, XUFAN LI, KAI WANG, ALEXANDER PURETZKY, CHRISTOPHER ROULEAU, DAVID GEOHEGAN, KAI XIAO, Oak Ridge National Laboratory, CNMS, ORNL TEAM — By changing the layer numbers, the electrical transport of field effect transistors based on CVD grown two-dimensional (2D) layered materials of transition metal dichalcongenides (TMDCs) such as $MoSe_2$, WSe_2 and WS_2 shown the different characteristics will be demonstrated. The transport measurements show that the altered semiconductor characteristics of these 2D materials can be possibly attributed to the shift of Fermi level when changing the number of layers. Besides, the transport characteristics can be tuned by adjusting the W/Mo doping level and mobility is also increased with increasing the layer numbers. In addition, the annealing effect on these CVD grown 2D layered materials will be discussed.

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