15:00~15:30

Visualizing Self-Recovery of $PtTe_2$ Surfaces

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Abstract

In the past decade, layered materials stacked by Van der Waal interaction create a large number of fascinating researches. Transition metal dichalcogenides (TMDs) with huge diversities share remarkable properties in many fields [1]. They exhibit an extremely high potential for next-generation devices from electronics to optics. $PtTe_2$ is also a typical TMD materials crystallizing in 1T structure. Recently, a layer-dependent semiconductor-semimetal transition has been reported for $PtTe_2$[2], which increases its application possibility. By scanning tunneling microscopy (STM), we found CVD-growth $PtTe_2$ surface with many intrinsic defects after *in situ* cleavage. It can self-recover after sputtering and annealing process. This result provides us a new method to manufacture defect-free TMD layers.

Keywords: Transition Metal Dichalcogenides (TMDs), Platina Ditelluride ($PtTe_2$), Defect, Scanning Tunneling Microscopy (STM)

Reference:

[1] C. L. Lin et al., J. Phys.: Condens. Matter **32** 243001 (2020).

[2] M. K. Lin et al., Phys. Rev. Lett. **124**, 036402 (2020).