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The Growth of High-Quality Hexagonal GaTe Nanosheets Induced by ZnO Nanocrystals

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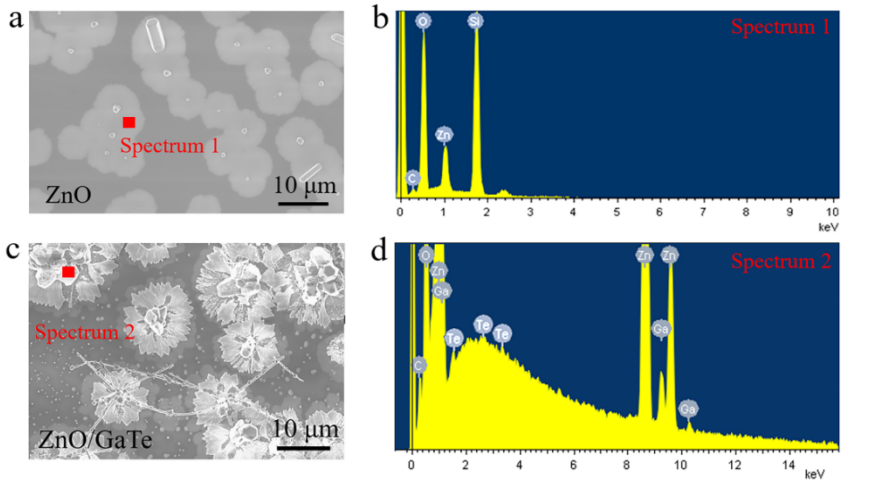

Figure S1. (**a**,**b**). SEM image and EDX spectrum of the ZnO grown on Si substrate. (**c**,**d**). SEM image and EDX spectrum of the GaTe/ZnO flowers.

Analysis of EDX was performed to confirm the compositions of the obtained samples. C, O, Zn and Si signals are observed in the EDX of ZnO nanocrystals in Figure S1(b). The Zn and O from the ZnO nanocrystals and Si from the substrate. It should be noted that the C signal is due to the use of the conductive adhesive during the SEM text. After the GaTe growth, five elements are present in Figure S1(d), namely Ga, Te, Zn and O from the CVD products and C from the conductive adhesive.

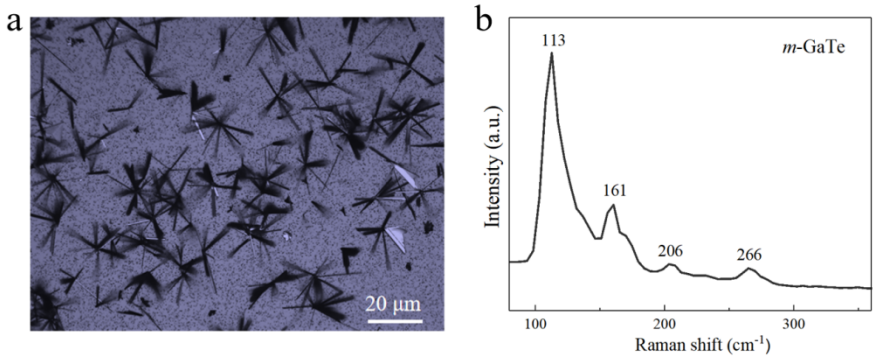

Figure S2. (**a**). OM image of GaTe flakes. (**b**). Raman characterizations of the GaTe flakes.

Figure S2(a) shows the OM image of GaTe flakes grown on the Si substrate. showing the dendritic morphology. The Raman spectrum was acquired to investigate the lattice vibration in the GaTe. As shown in Figure S2(b), four Raman features are visible approximately at 113, 161, 206 and 266 cm^{-1}, corresponding to A_g mode of monoclinic GaTe (*m*-GaTe)[1].

References

1. Yu, Y.; Ran, M.; Zhou, S.; Wang, R.; Zhou, F.; Li, H.; Gan, L.; Zhu, M.; Zhai, T. Phase-engineered synthesis of ultrathin hexagonal and monoclinic GaTe flakes and phase transition study. *Adv. Funct. Mater.* **2019**, *29*, 1901012.