

**Different Phases of Few-layer MoS₂ and their Silver/Gold
Nanocomposites for Efficient Hydrogen Evolution Reaction**

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Table 1. Summary of phase content for products obtained at 160, 180, 170, 190, 200,

Temperature (°C)	the percentage of 1T phase	the percentage of 2H phase
160	72.1%	27.9%
170	75.6%	24.4%
180	80.1%	19.9%
190	68.0%	32.0%
200	57.6%	42.4%
210	16.3%	83.7%
220	15.6%	84.4%

210 and 220°C.

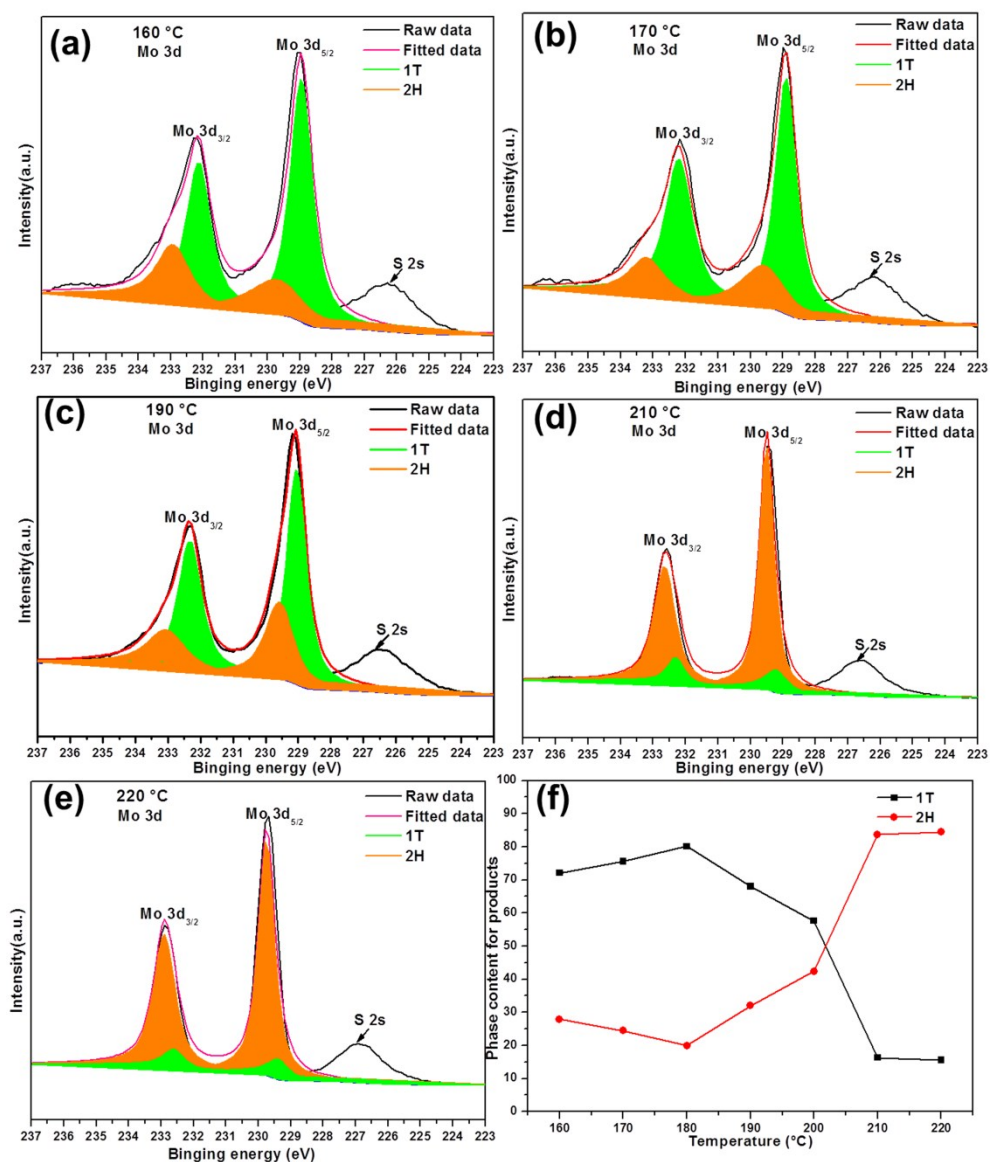


Fig. S1. High-resolution XPS Mo 3d spectra of the products obtained at (a) 160°C, (b) 170°C, (c) 190°C, (d) 210°C and (e) 220°C, and (f) the 1T and 2H phase content for products obtained at different temperature.

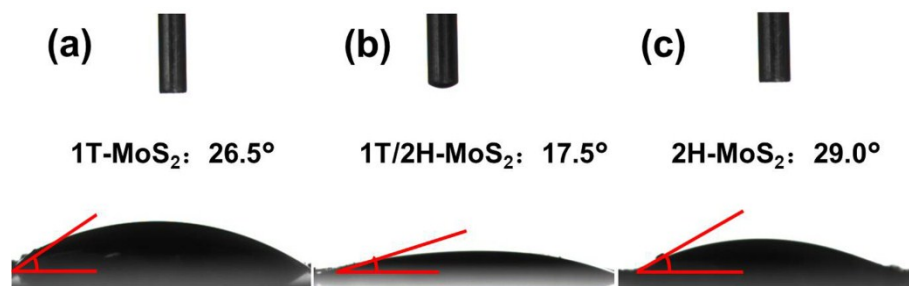


Fig. S2. Contact angle of water droplets on the surface of (a) 1T-MoS₂, (b) 1T/2H-MoS₂ and (c) 2H-MoS₂, respectively.

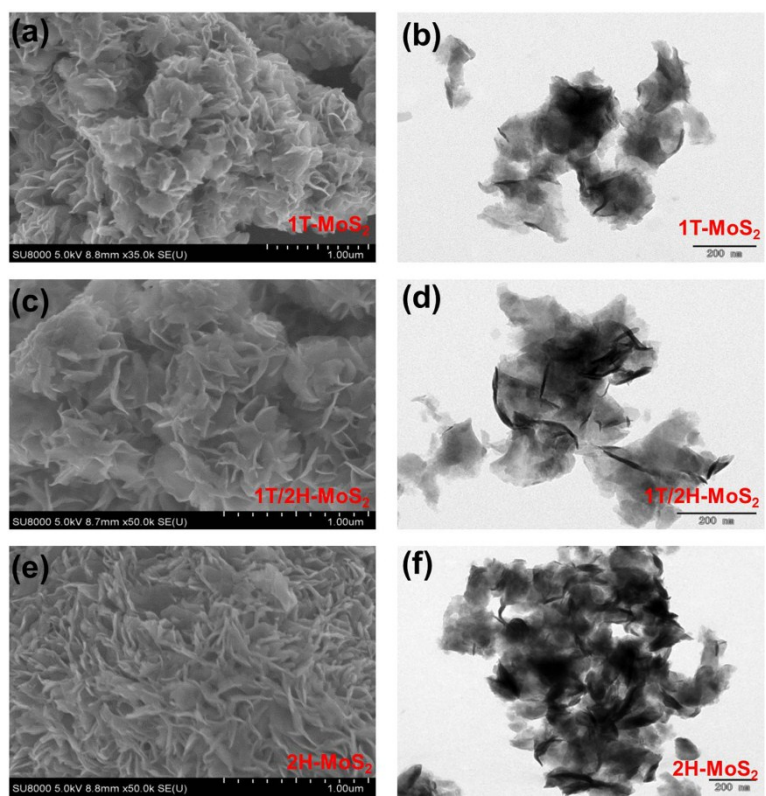


Fig. S3. SEM and TEM images of (a, b) 1T-MoS₂, (c, d) 1T/2H-MoS₂, and (e, f) 2H-MoS₂, respectively.

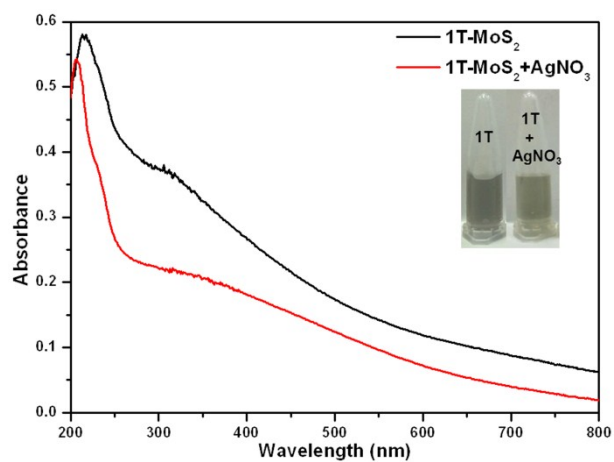


Fig. S4. UV-vis spectra of 1T-MoS₂, the mixture of 1T-MoS₂ and AgNO₃ (inset: photo images of the color 1T-MoS₂ (0.075 mg mL⁻¹), the mixture of 1T-MoS₂ (0.075 mg mL⁻¹) and AgNO₃ (0.1 mM)).

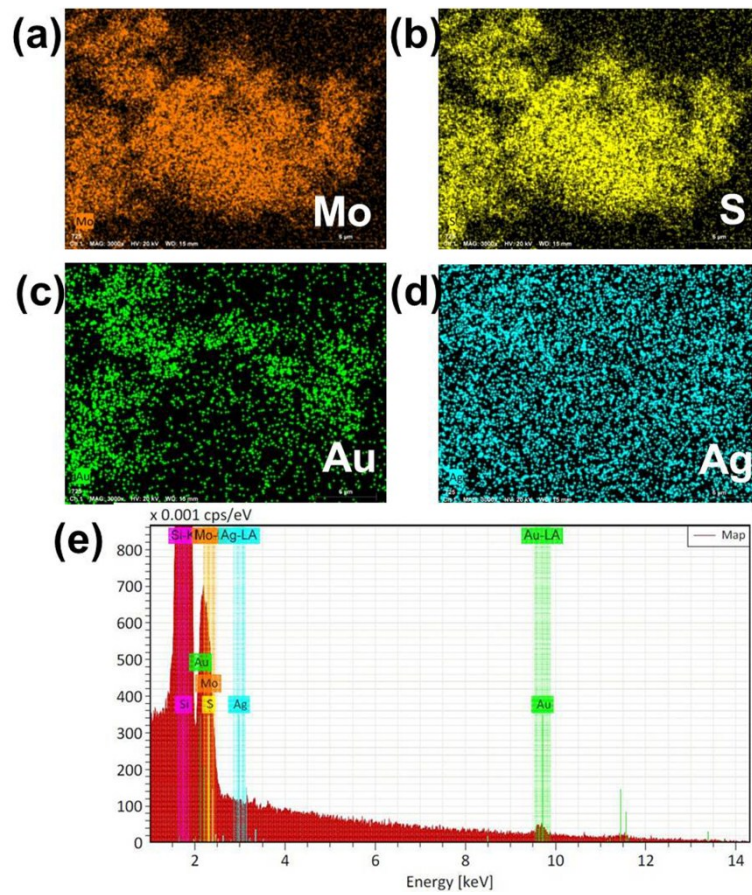


Fig. S5. The EDX elemental mapping images for 1T-MoS₂@Ag/AuNPs (a) Mo, (b) S, (c) Au, (d) Ag and (e) the EDX spectrum of 1T-MoS₂@Ag/AuNPs.

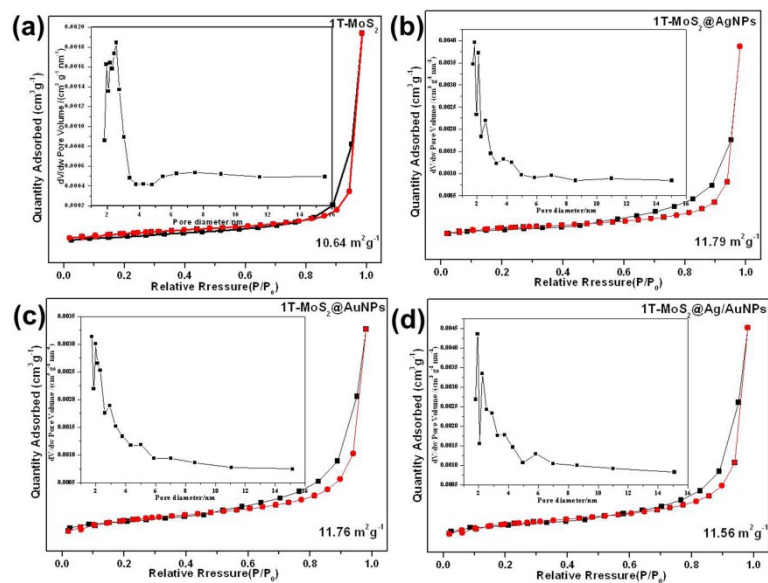


Fig. S6. Nitrogen adsorption-desorption isotherms at 77K and the BJH pore-size distributions (insets) of (a) 1T-MoS₂, (b) 1T-MoS₂@AgNPs, (c) 1T-MoS₂@AuNPs and (d) 1T-MoS₂@Ag/AuNPs nanosheets.

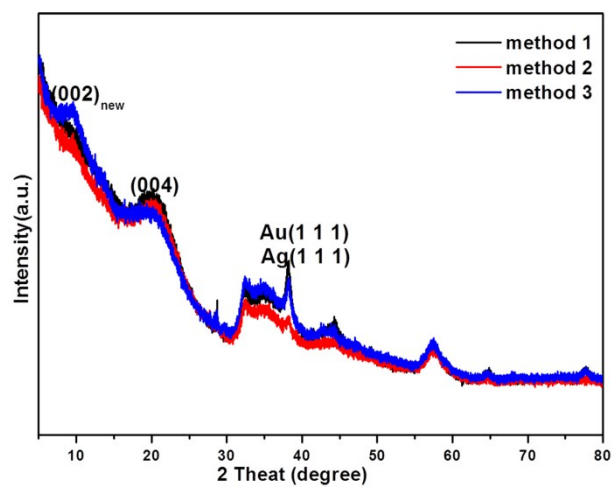


Fig. S7. XRD spectra of 1T-MoS₂@Ag/AuNPs obtained by three different methods.

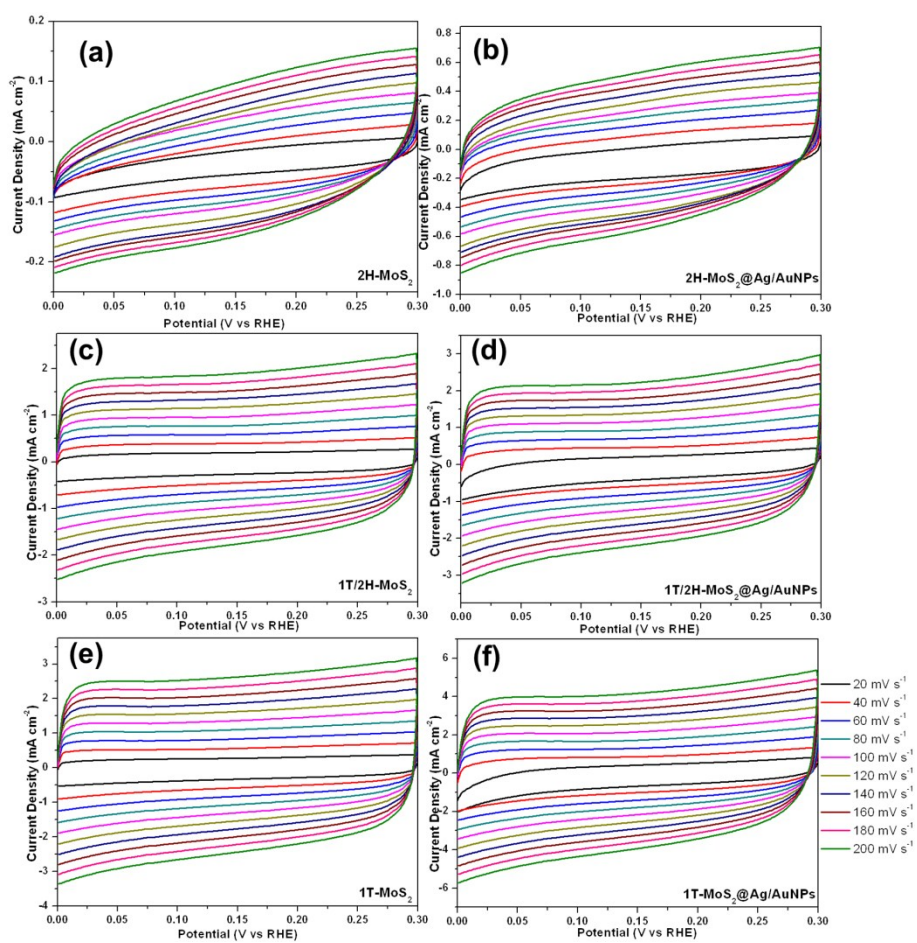


Fig. S8. Cyclic voltammety curves of the six representative MoS₂ nanosheet samples in 0.5 M H₂SO₄ under different scan rates (20–200 mV s⁻¹) were measured in the region of 0 to 0.3 V vs. RHE.