

**Direct fabrication of NbS₂ nanoflakes on carbon fiber by atomic layer deposition
for ultrasensitive cardiac troponin I detection**

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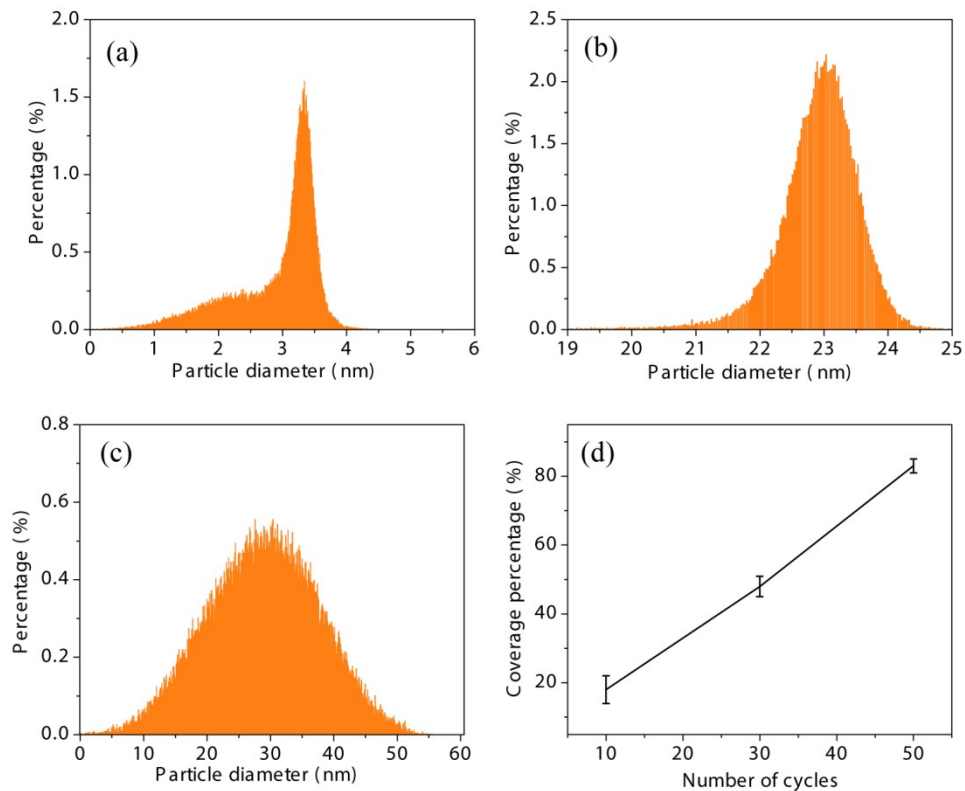


Fig.S1. Particle diameter distribution of ALD-made NbS₂ films obtained by 10 (a), 30 (b), 50 (c) cycles. (d) Coverage percentage of ALD-made NbS₂ films with difference cycles.

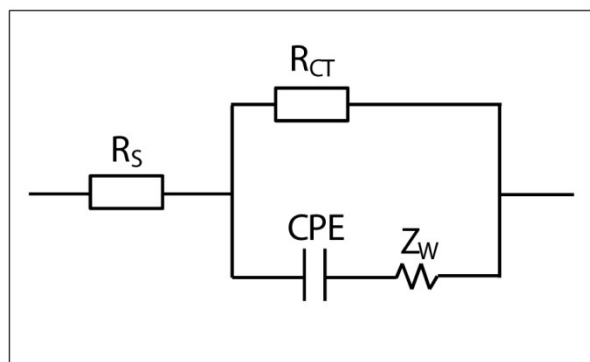


Fig.S2. The schematic of equivalent circuit including solution resistance (R_s), charge transport resistance (R_{ct}), constant-phase element (CPE), and Warburg impedance (Z_w).

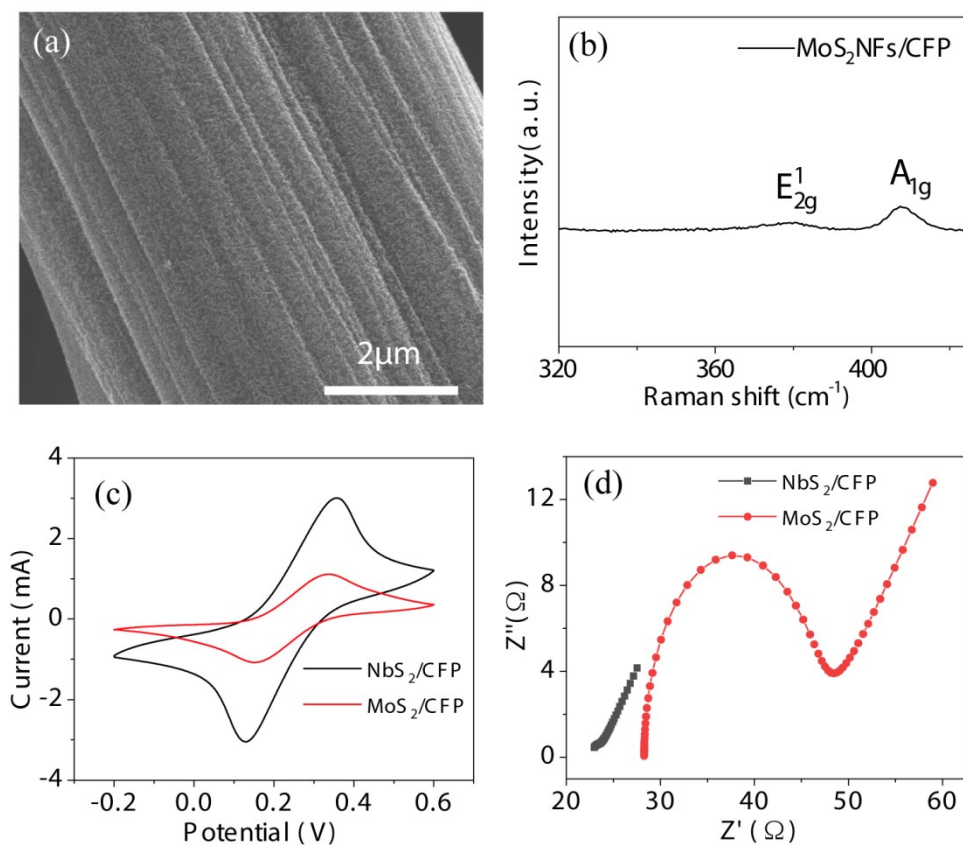


Fig.S3. MoS₂ constructed on the surface of CFP by 70 ALD cycles using MoCl₅ and H₂S. Other growth processes are the same as that of NbS₂. Results of SEM (A), Raman (B), CV (C) and EIS (D).

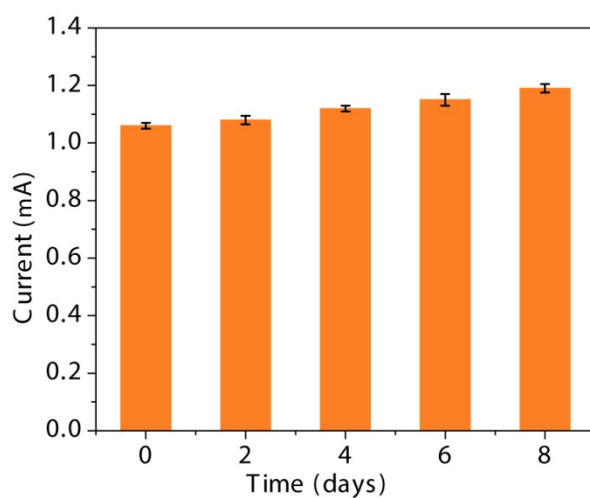


Fig.S4. Stability of the modified electrodes kept under 4 °C for 0-8 days (n=3).

Table S1. cTnI determination in human serum samples with the biosensor (n=3).

Sample	Added	Found	Recovery(%)	RSD(%)
1	100 pM	101.61 pM	101.61	3.11
2	1 pM	0.9367 pM	93.67	4.04
3	10 fM	9.9233 fM	99.23	4.42