Supporting Information

Surfactant-free Synthesis of High-yield and Size-Tunable Monocrystalline Gold Nanoplates as Reinforcement of Carbon Nanotube Matrix for High-Performance EMI Shielding

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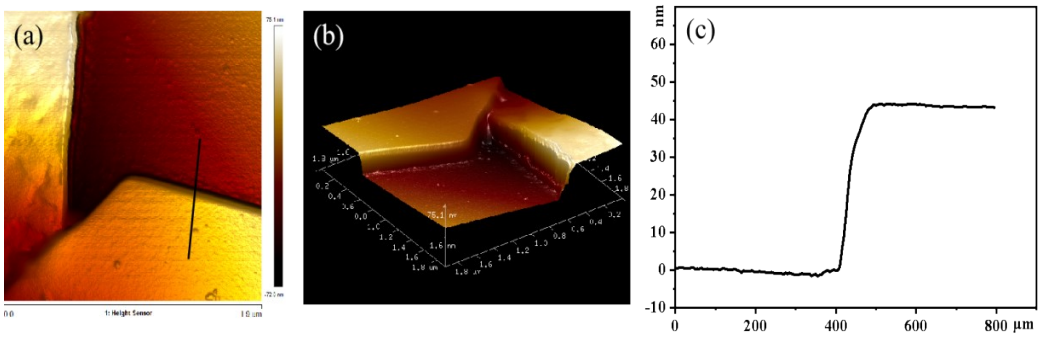

Fig. S1 (a) Atomic force microscopy image. (b) Three-dimensional simulation of gold nanoplates. (c) height profile of Au plate

Fig. S2 Schematic illustration of the crystal growth of Au nano/microplates at different concentrations of DMSO under hydrothermal reaction.

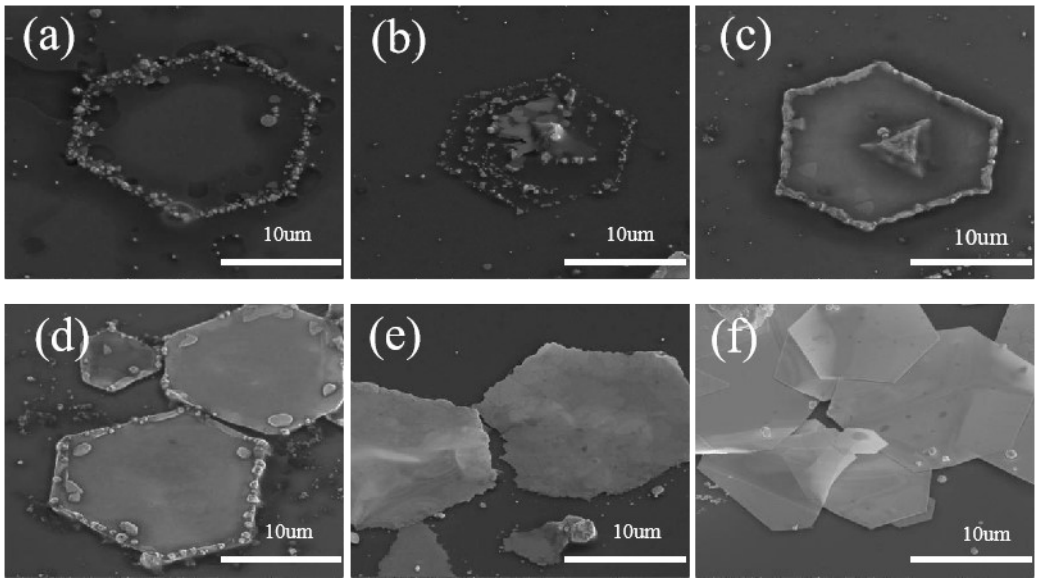

Fig. S3 Different gold plate shape plots at the same point in time

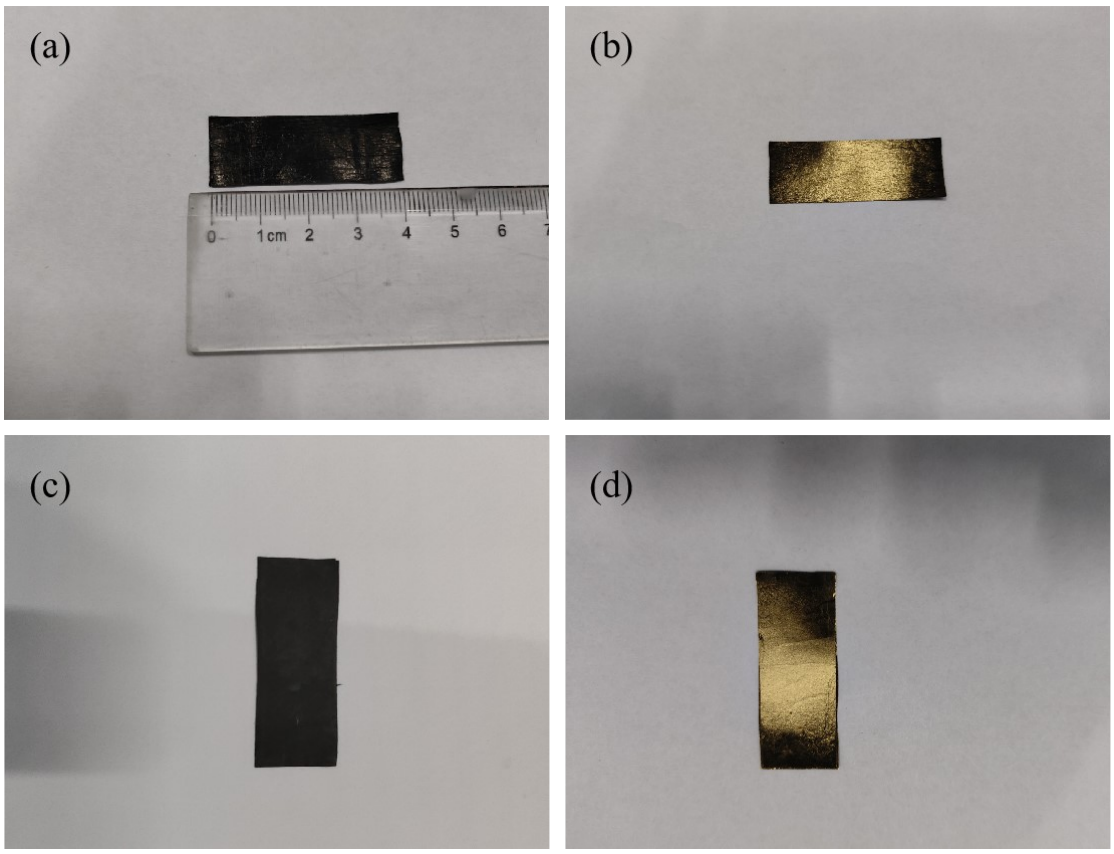

Fig. S4 Photographs of the samples at different preparation steps. (a) raw CNT sheet, (b) raw CNT sheet-Au, (c) CNT-CNT, (d) CNT-CNT-Au

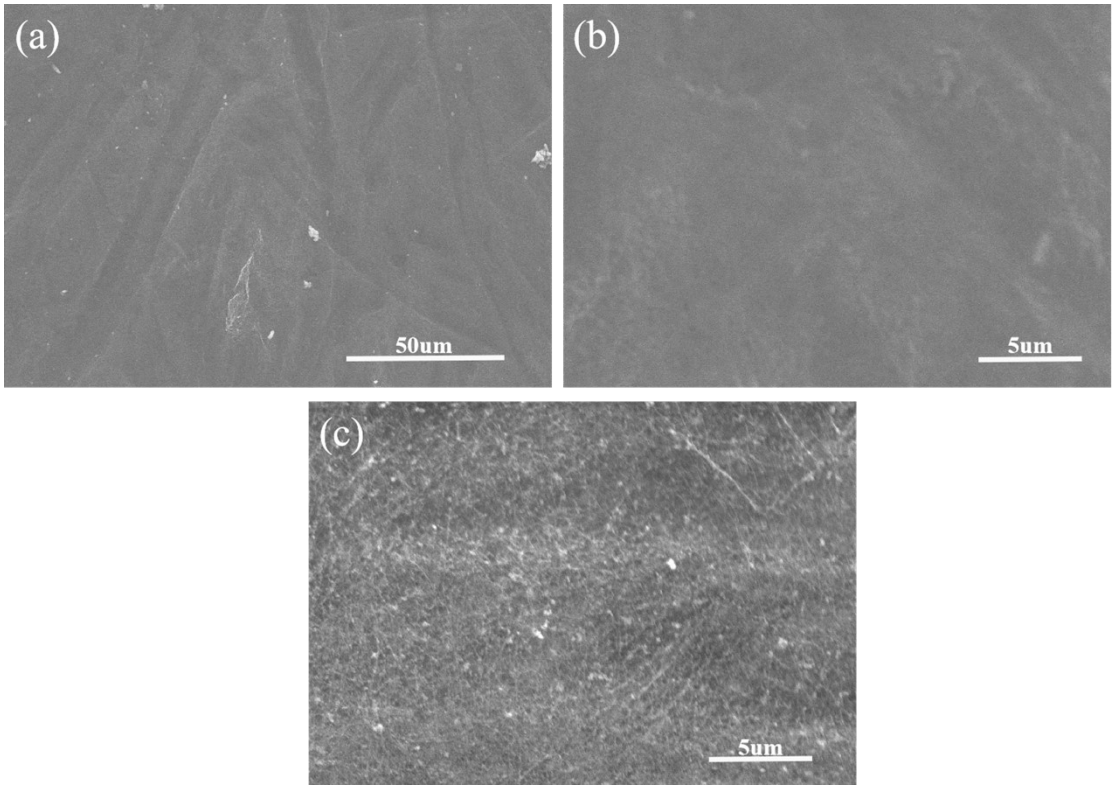

Fig. S5 Representative low- (a) and high-magnification (b) SEM images of the CNT-CNT Representative (c) SEM images of the raw CNT sheet

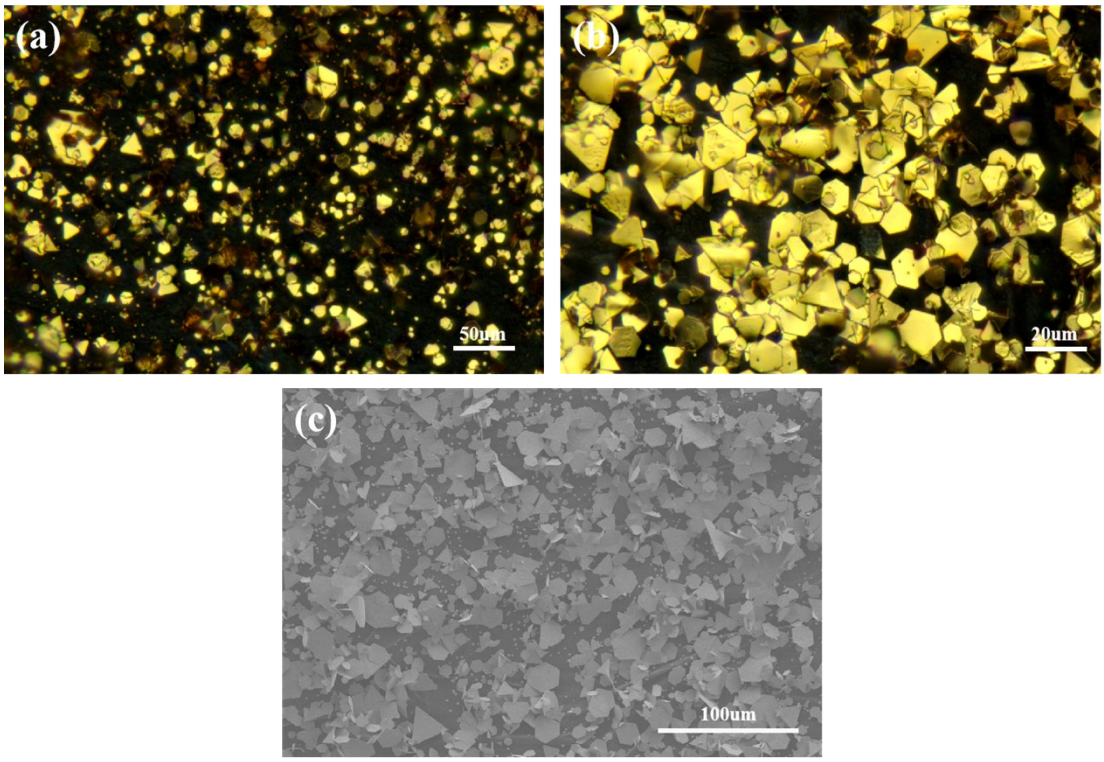

Fig. S6 Representative low- (a) and high-magnification (b) Optical microscopy of the raw CNT sheet-Au. Representative (c) SEM images of the raw CNT sheet-Au

Table S1. Summary of thickness, Electrical conductivity, and Density.

Sample	Thickness (μm)	Electrical conductivity (S/m)	Density (g/cm^3)
raw CNT sheet	51	5180	0.25
raw CNT sheet-Au	53	18013	0.39
CNT-CNT	61	7722	0.42
CNT-CNT-Au	63	24070	0.58

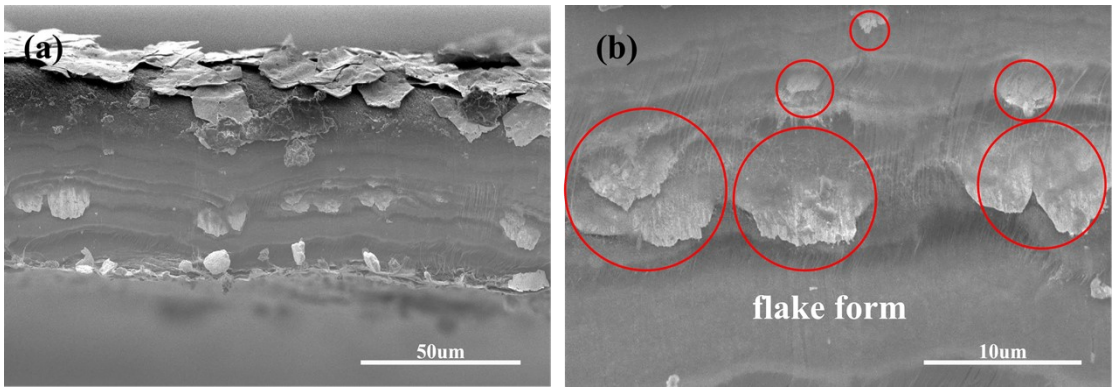

Fig. S7 Representative low- (a) and high-magnification (b) SEM images of the CNT-CNT-Au cross-sectional morphology.

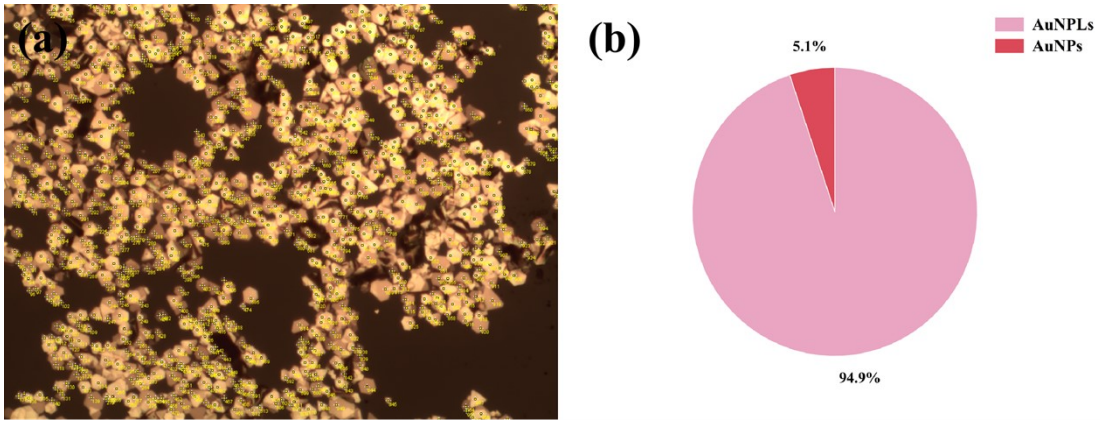

Fig. S8 Quantitative analysis of the yield chart of gold plates.

Table S2. EMI shielding performance of various advanced lightweight shielding materials.

Materials	Thickness (mm)	EMI SE (dB)	Reference
Cu@C/CNT	0.0522	26.65	[1]
MXene/$CoFe_2O_4$@CNT	0.025	44.41	[2]
MXene/CNT/SmFeN	0.25	66.5	[3]
Porous N-rGo	0.048	45.6	[4]
Graphene/CNT/polypyrrole	0.249	59.6	[5]
MXene/WPU	0.035	52	[6]
BC/MXene/HFO	0.35	67.6	[7]
Graphene/PMMA	0.033	60	[8]
Graphene/CNT	0.106	75	[9]
CNT/Au	0.063	76	This work

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