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Supplementary Information

PbTe Quantum Dots as Electron Transfer Intermediates for Enhanced Hydrogen Evolution Reaction of Amorphous MoS_x/TiO_2 Nanotube Arrays

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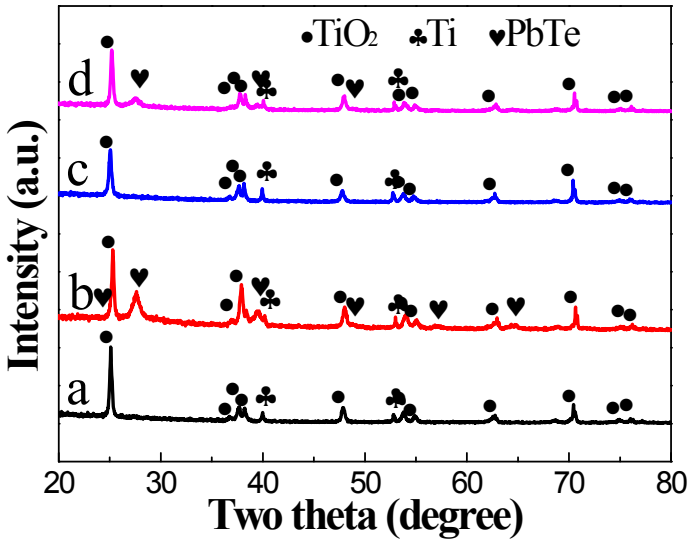

Figure S1 XRD patterns of pristine TNAs (a), PbTe/TNAs (b), MoS_x/TNAs(c) and MoS_x@ PbTe/TNAs (d).

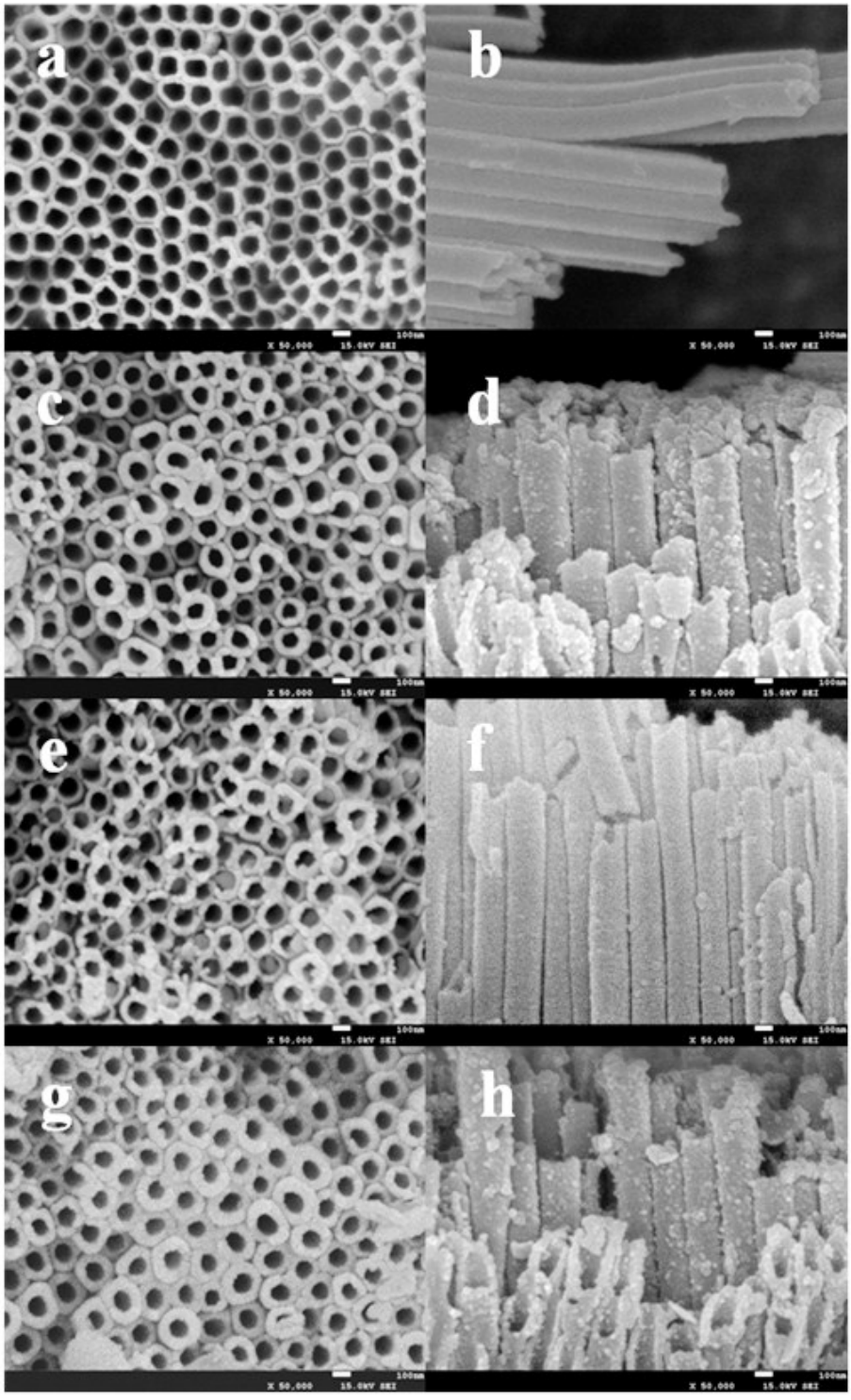

Figure S2 FE-SEM images of TNAs (a, b), PbTe/TNAs (c, d), MoS_x/TNAs (e, f) and PbTe@MoS_x/TNAs (g,h)

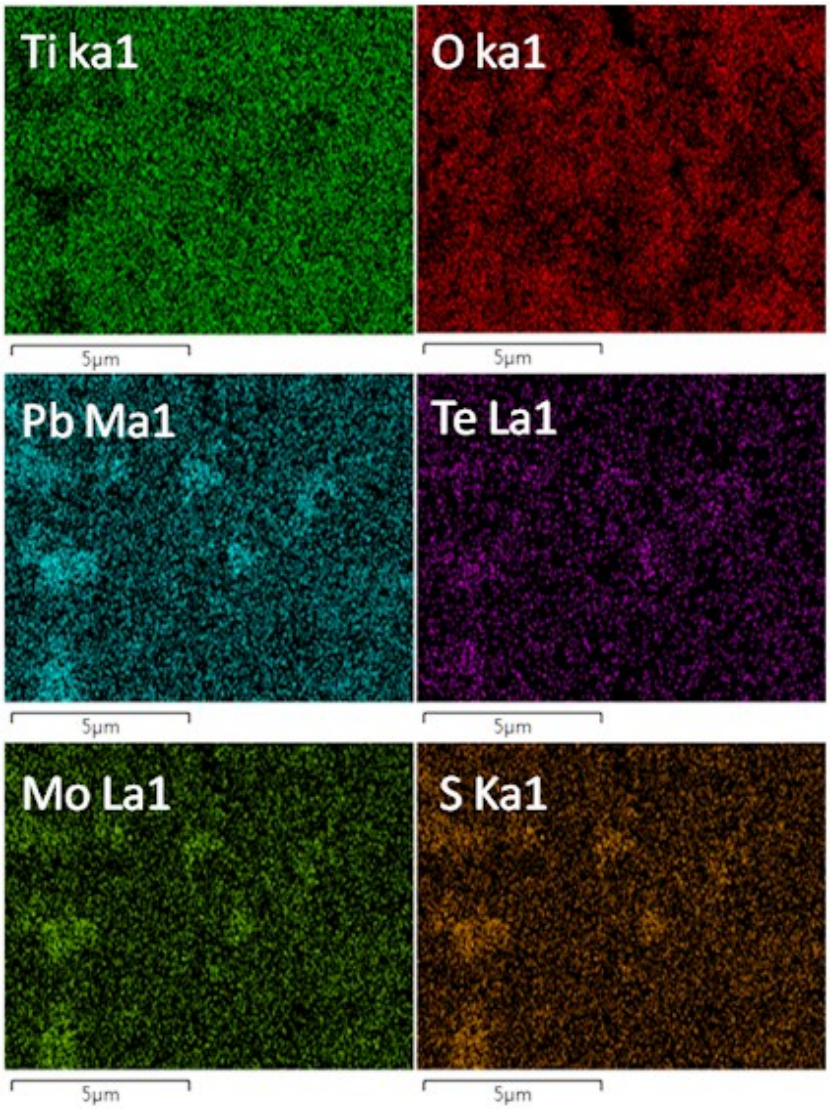

Figure S3 EDS elemental mapping images of the PbTe@MoS_x/TNAs.

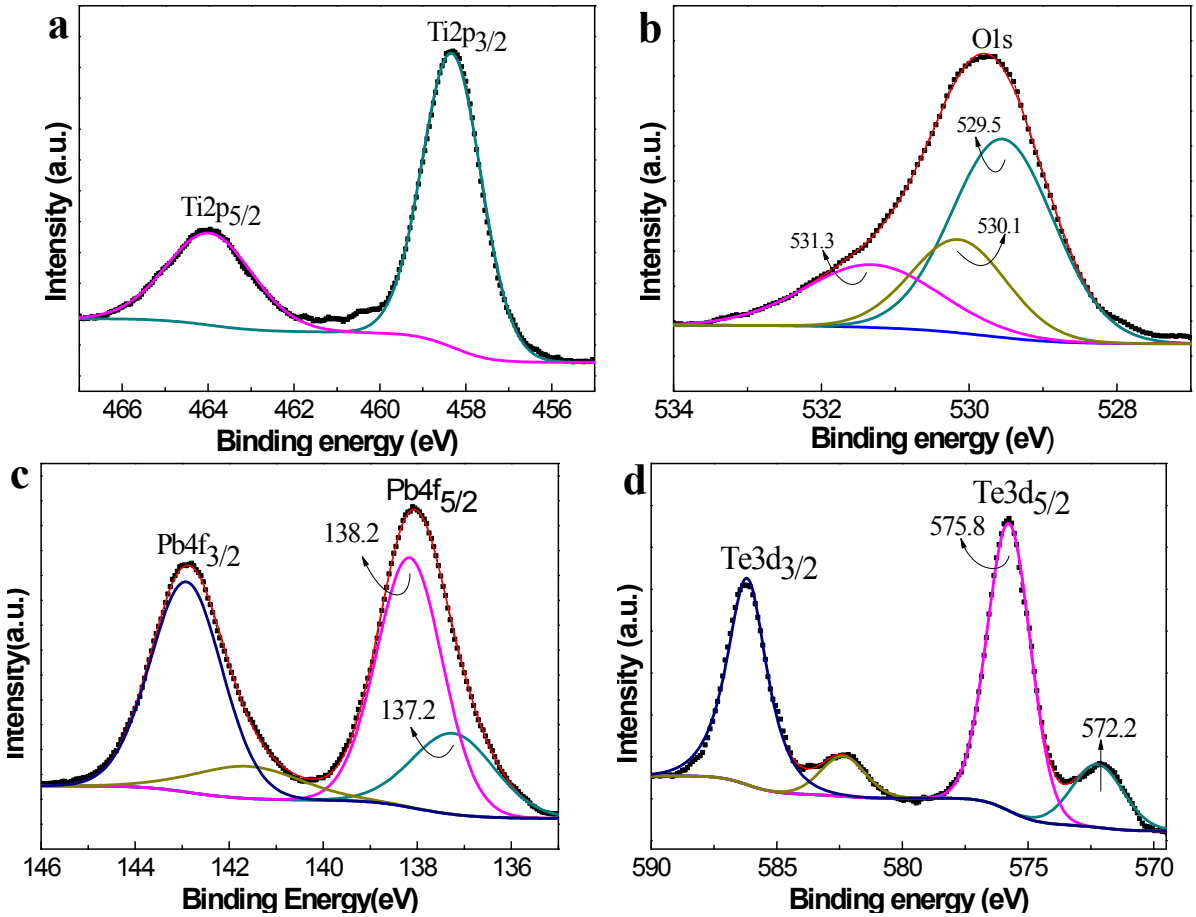

Figure S4 High resolution XPS spectra of (a) Ti2p, (b) Ols, (c) Pb4f and (d) Te3d of the PbTe/TNAs

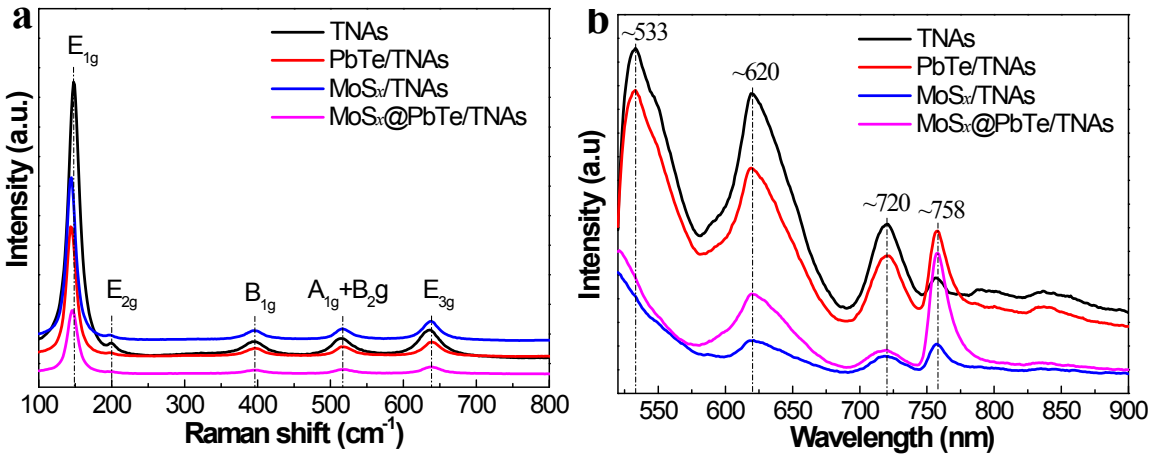

Figure S5 Raman spectroscopy (a) and PL emission spectra (b) of the samples.

Table S1 Chemical composition of the sample from EDS (at. %)

Sample	**Te L**	**Pb M**	**S K**	**Mo**	**O K**	**Ti K**
PbTe/TNAs	1.48	1.02	—	—	61.42	36.08
MoS_x@PbTe/TNAs	6.69	9	4.5	2.56	60.09	17.15

Table S2 Simulated values of the devices in equivalent circuits of the samples

Sample	**Rs（Ω·cm^{-2}）**	**R_1（Ω·cm^{-2}）**	**R_2（Ω·cm^{-2}）**	**C_1（F·cm^{-2}）**	**C_2（F·cm^{-2}）**
TNAs	0.5786	6.036	924.2	0.02556	0.009913
PbTe/TNAs	2.541	50.05	183.5	0.0008415	0.01547
MoS_x/TNAs	1.015	3.340	344.4	0.01453	0.01047
MoS_x@PbTe/TNAs	1.013	3.291	103.8	0.02385	0.01572