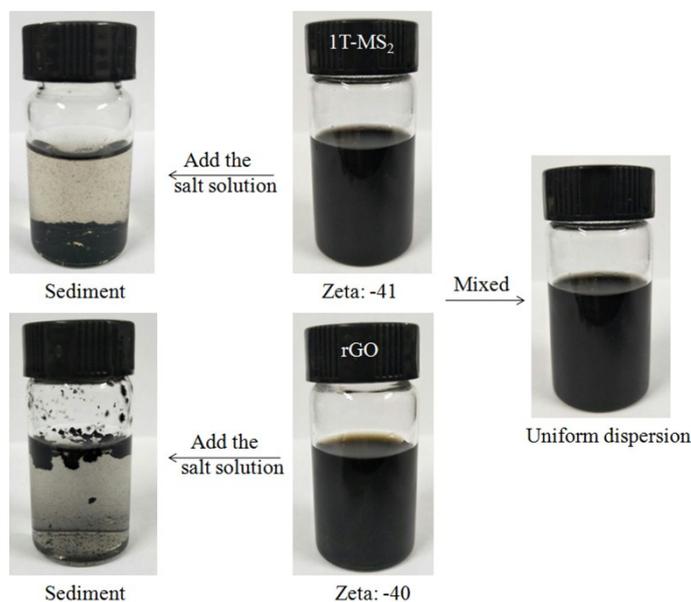
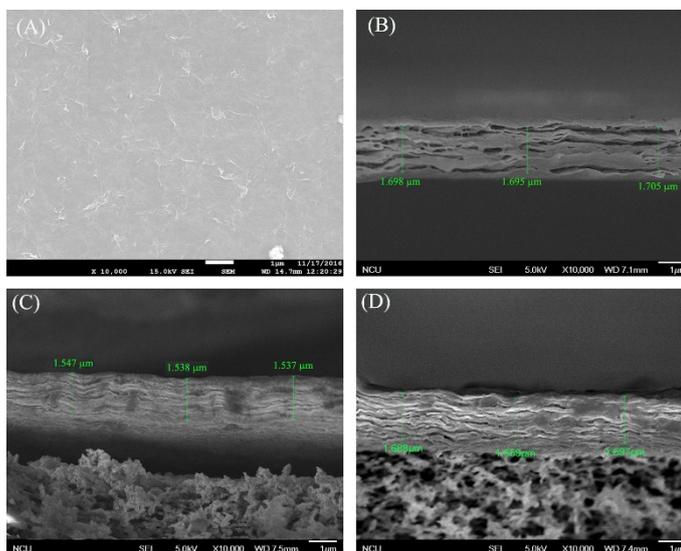


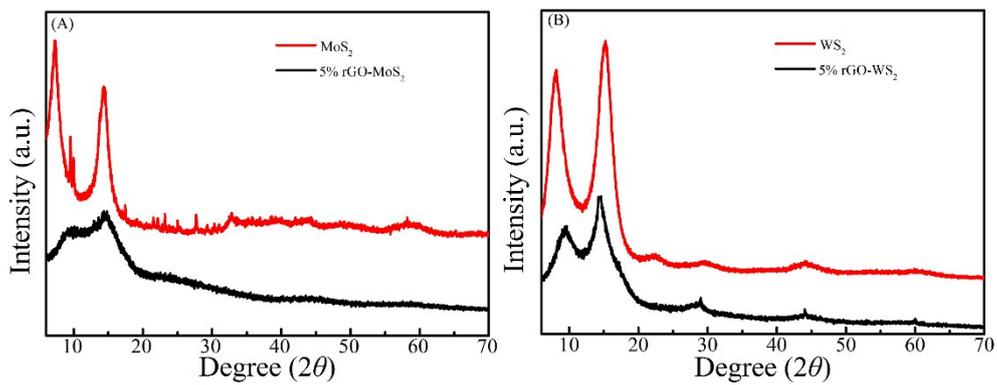
## Supporting information



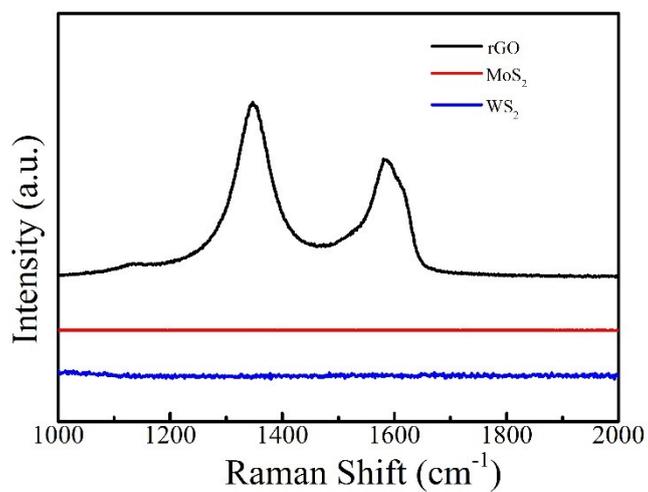
**Figure S1.** Photographic images for the phenomenon of MS<sub>2</sub> and rGO solution after mixing and adding the salt solution.



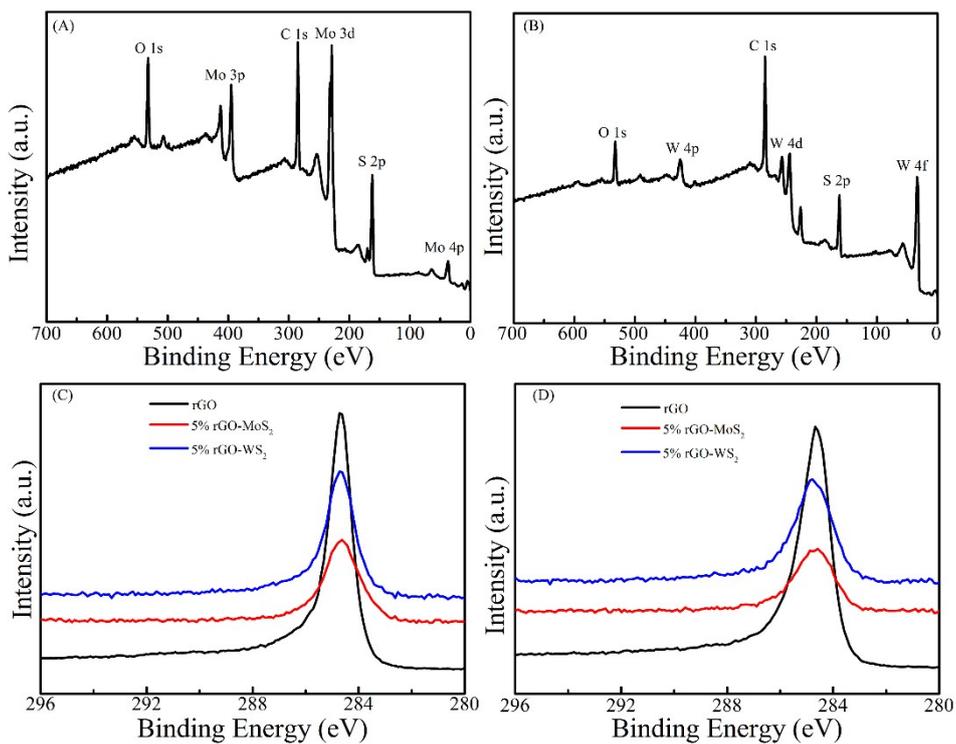
**Figure S2.** SEM image of rGO thin film (A). Cross-section view of rGO (B), MoS<sub>2</sub> (C), and WS<sub>2</sub> (D) thin-films.



**Figure S3.** XRD patterns of MoS<sub>2</sub>, 5% rGO-MoS<sub>2</sub> (A) and WS<sub>2</sub>, 5% rGO-WS<sub>2</sub> thin-films (B).

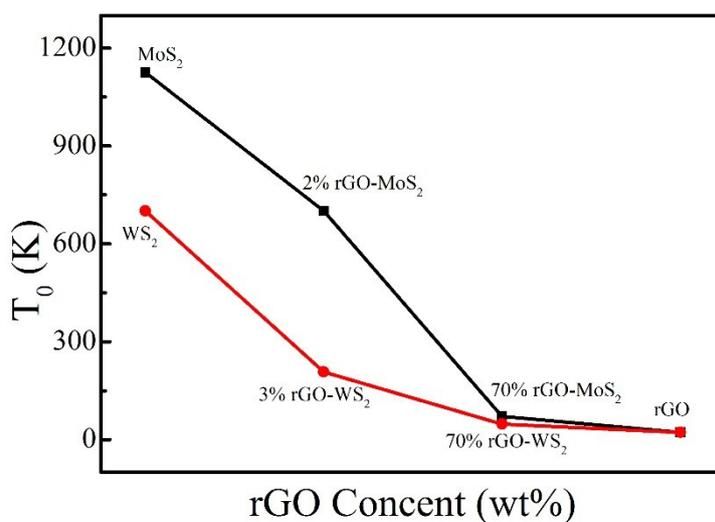


**Figure S4.** Raman spectra of rGO, MoS<sub>2</sub>, and WS<sub>2</sub> thin-films.



**Figure S5.** XPS patterns of survey scan: rGO-MoS<sub>2</sub> (A), rGO-Ws<sub>2</sub> (B) thin-films.

XPS spectra of rGO, rGO-MoS<sub>2</sub>, rGO-Ws<sub>2</sub> thin-films with different depth: surface (C), 5 nm (D).



**Figure S6.**  $T_0$  values of rGO-MS<sub>2</sub> films with different rGO concentration.