**Supplementary Materials**

**Reaction with Organic Halides as a General Method for the Covalent Functionalization of Nanosheets of 2D Chalcogenides and Related Materials**

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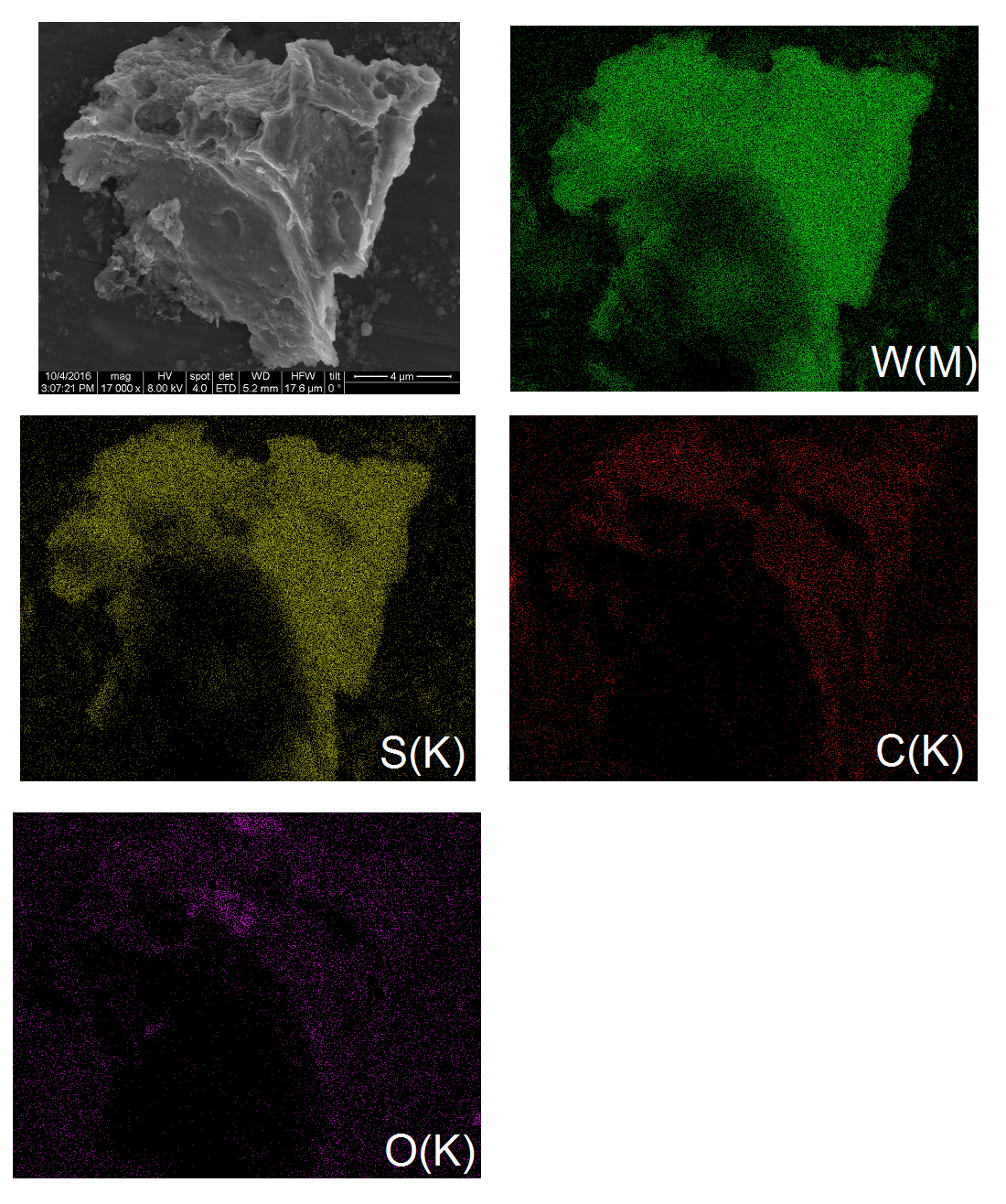


Fig. S1. EDAS elemental maps of WS2-methoxyphenyl (1).

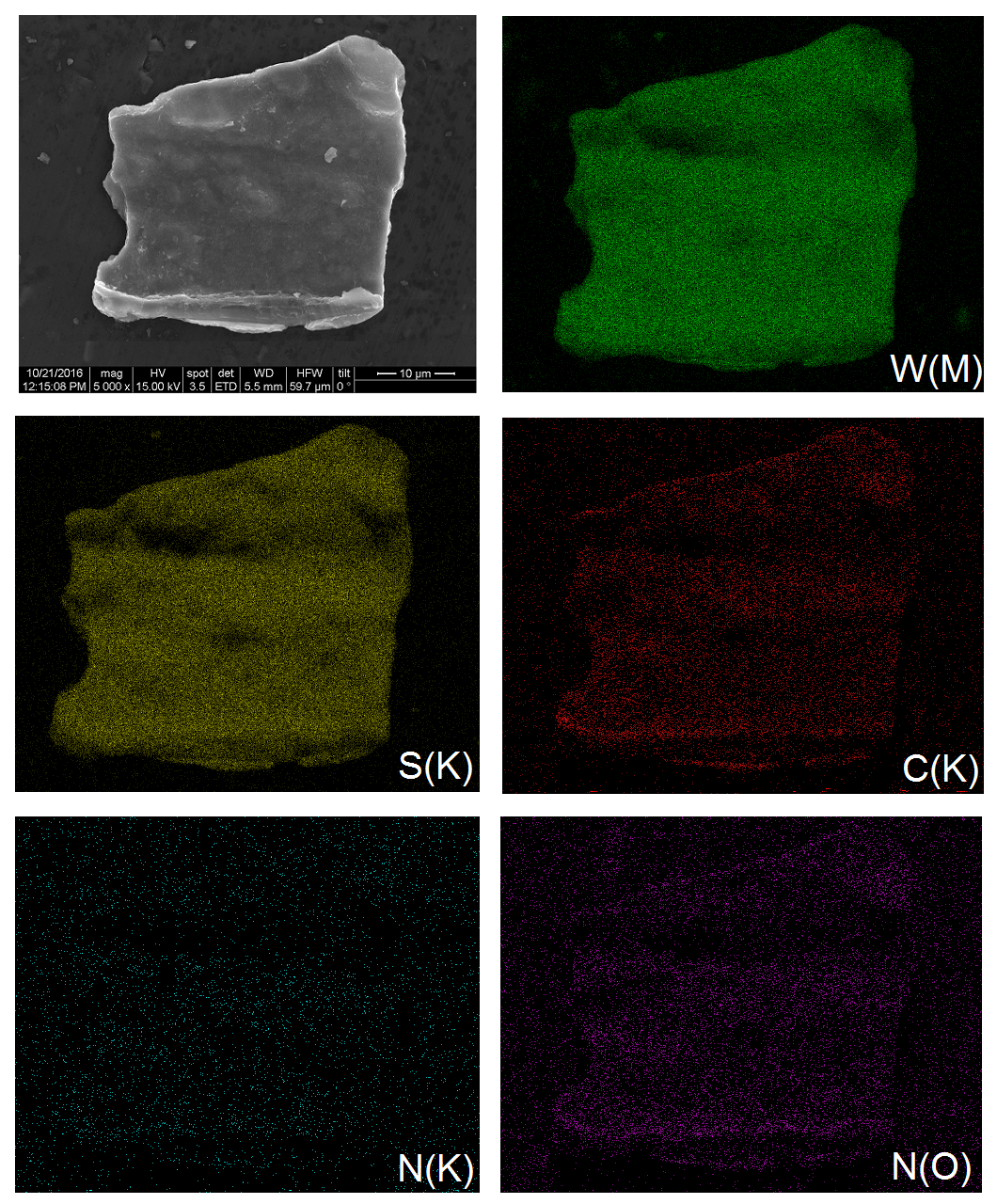


Fig. S2. EDAS elemental maps of WS2-nitrophenyl (3).

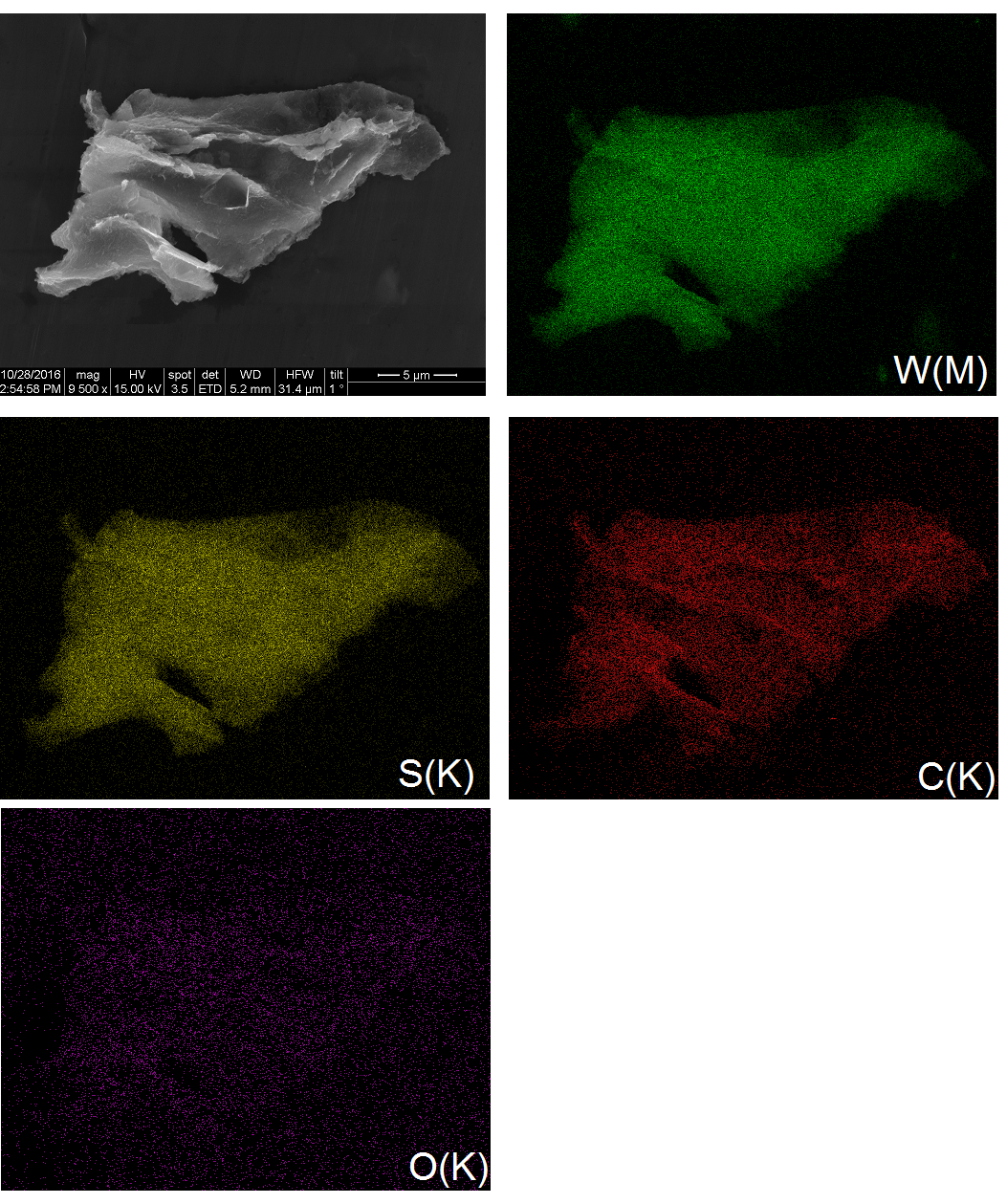


Fig. S3. EDAS elemental maps of WS2-pyrene (**4**).

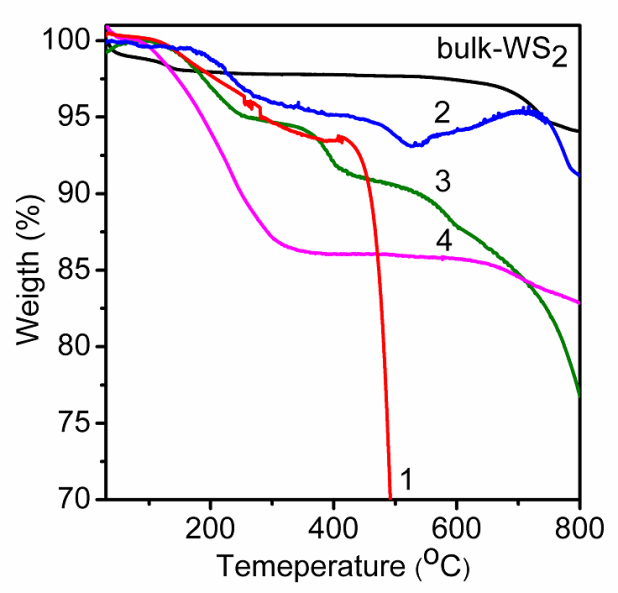


Fig. S4. TGA curves of WS2-methoxyphenyl (1), WS2-phenyl (2), WS2-nitrophenyl (3) and WS2-pyrene (4) (heating rate 3 ºC/ min, nitrogen atmosphere). The TGA plot of bulk WS2 is also given.

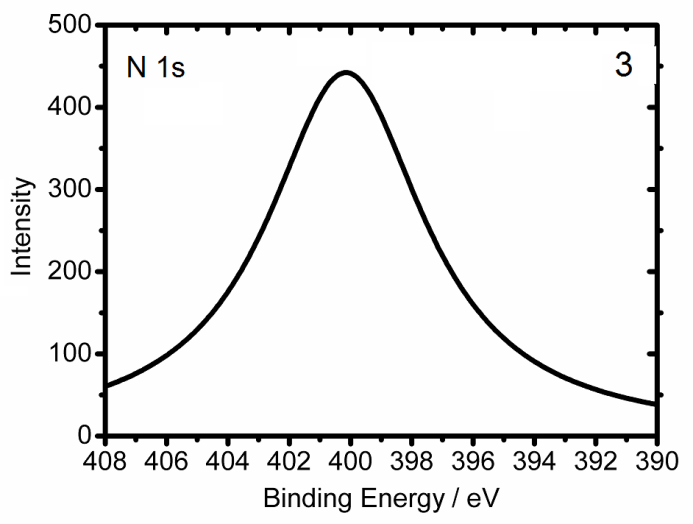


Fig. S5.N1s core level XP spectrum of WS2-nitrophenyl (3).

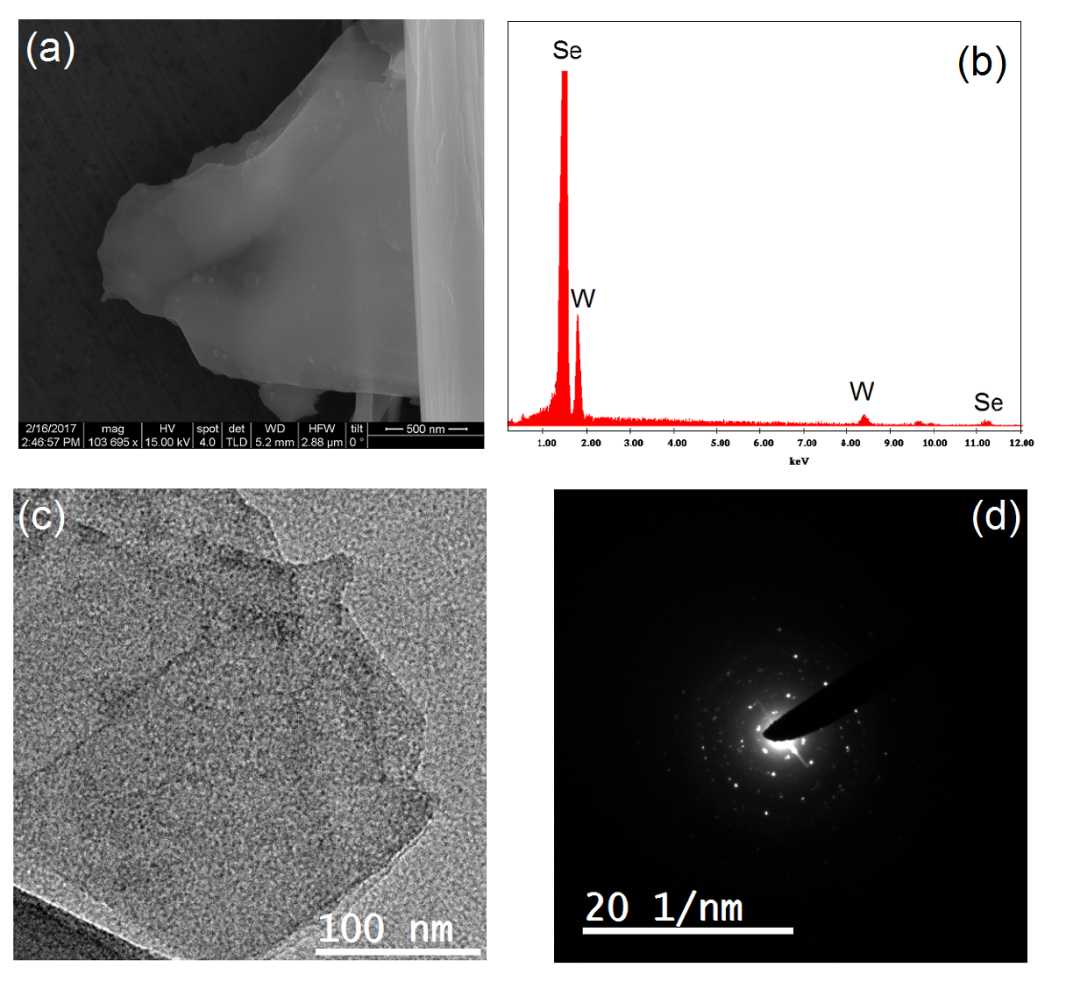


Fig. S6.Electronic microscope imagesof chemically exfoliated1T-WSe2 nanosheets. (a) SEM image, (b) EDAS, (c) HR-TEM image, and (d) SAED pattern.

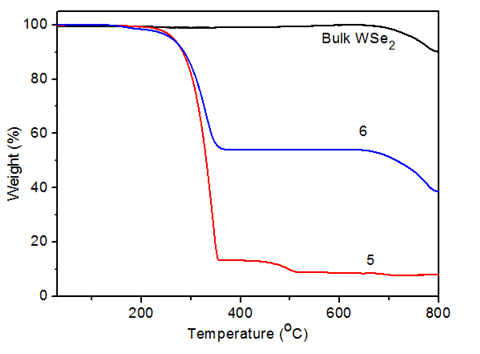
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Fig. S7. TGA plots of WSe2-phenyl (5) and WSe2-pyrene (6) (heating rate 3 ºC/ min, nitrogen atmosphere). The TGA plot of bulk WSe2 is also given.

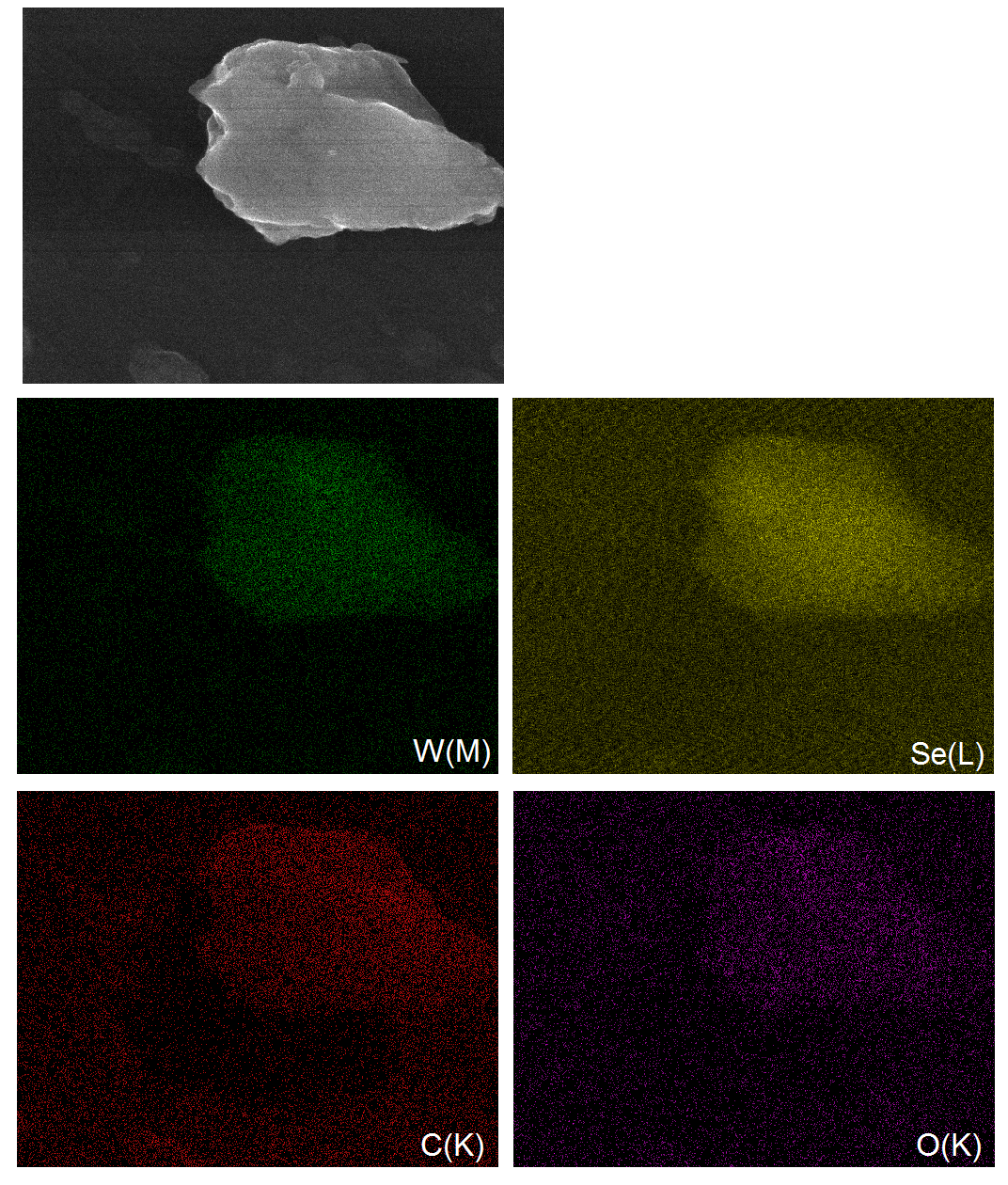


Fig. S8. EDAS elemental maps of WSe2-pyrene (6).



Fig. S9.Absorption spectra of of WS2-methoxyphenyl (1), WS2-phenyl (2), WS2-nitrophenyl (3) and WS2-pyrene (4) in N-methyl-2-pyrrolidone (NMP) suspension. The spectra of bulk and chemically exfoliated 1T-WS2 are also given.



Fig. S10.Absorption spectra of WSe2-phenyl (5) and WSe2-pyrene (6) in NMP. The spectra of bulk and chemically exfoliated 1T-WSe2 are also given.



Fig. S11**.** Absorption spectra of WS2-pyrene in NMP. The spectra of 1-(bromoacetyl)pyrene is also given.



Fig. S12.Absorption spectra of 3-acetyl-6-bromocoumarin (80 M) and a mixture of 1T-WS2 and coumarin (80 M and 120 M respectively) in NMP-water mixture (8/2: v/v).

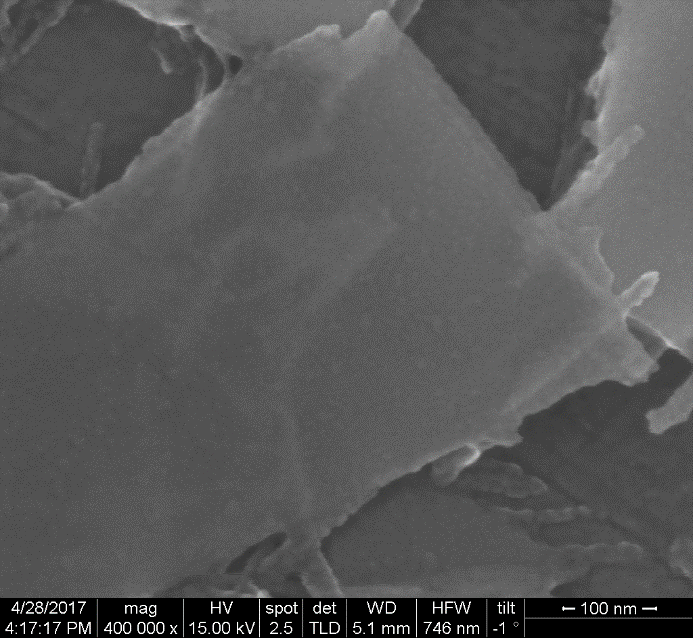


FIG. S13. FE-SEM image of exfoliated 2H-WTe2.



Fig. S14. TGA curves of WTe2-phenyl and WTe2-pyrene (heating rate 3 ºC/ min, nitrogen atmosphere). The TGA plot of bulk WTe2 is also given.

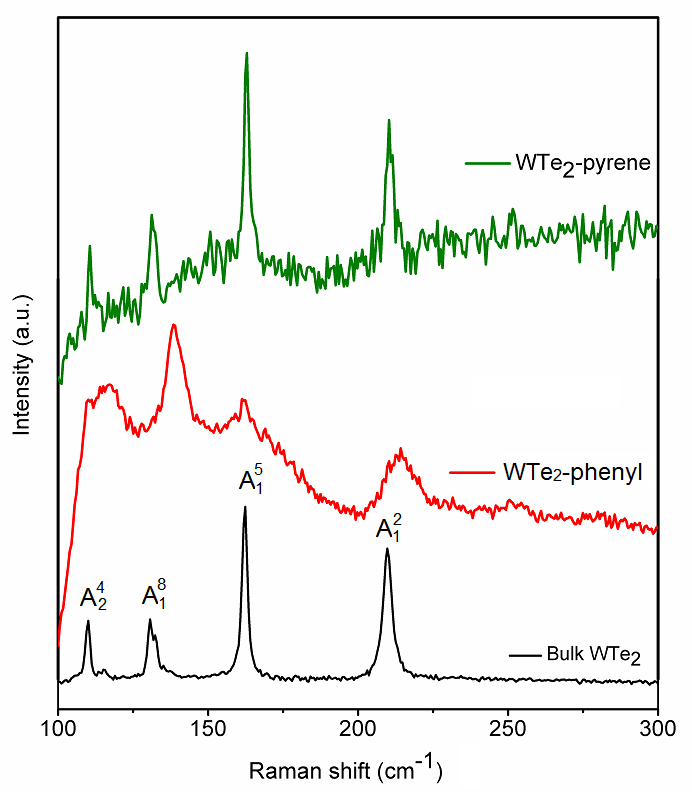


FIG. S15. Raman spectra of WTe2-phenyl and WTe2-pyrene. The spectra of bulk WTe2 is also given (λ = 514.5 nm).



Fig. S16. Absorption spectra of WTe2-phenyl and WTe2-pyrene in DMF dispersion. The spectrum of bulk WTe2 is also given.



Fig. S17. FT-IR spectra of WTe2-phenyl and WTe2-pyrene. The spectrum of bulk WTe2 is also given.

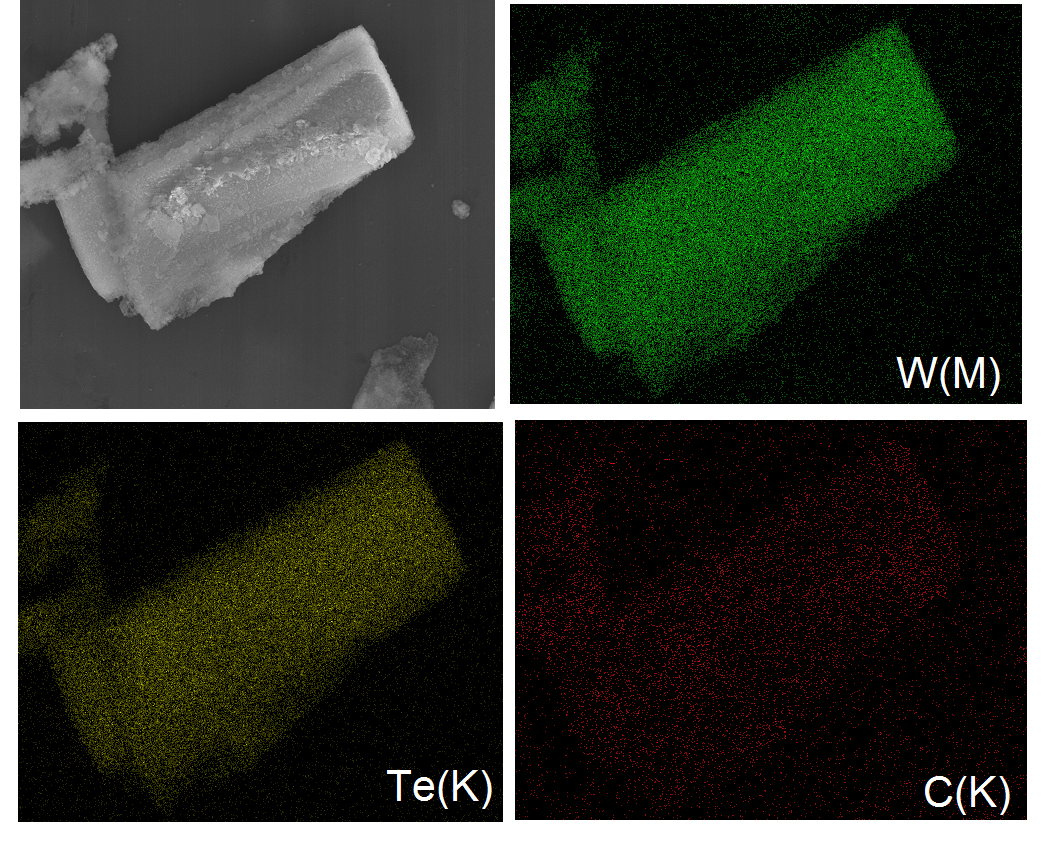


Fig. S18. EDAS elemental maps of WTe2-phenyl.