

Electronic Supplementary Information (ESI)

Direct transformation of ReO₃ nanorods into ReS₂ nanosheets on carbon fibres for modulating solid-gas interactions

Song Hee Lee^{ad}, Noeul Kim^{bd}, Ji Hwan Jeong^c, Bo-Hye Kim^c, Hak Ki Yu^{b,*}, and Myung Hwa Kim^{a,*}

^a Department of Chemistry & Nano Science, Ewha Womans University, Seoul 03760, Republic of Korea

^b Department of Materials Science and Engineering & Department of Energy Systems Research, Ajou University, Suwon 16499, Republic of Korea.

^c Department of Science Education, Chemistry Education Major, Daegu University, 201 Daegudae-ro, Gyeongsan-si, Gyeongsangbuk-do, 712-714, Korea.

^d These authors contributed equally to this work as first authors

* Corresponding Authors: hakkiyu@ajou.ac.kr (H. K. Yu) and myungkim@ewha.ac.kr (M. H. Kim)

Figure S1

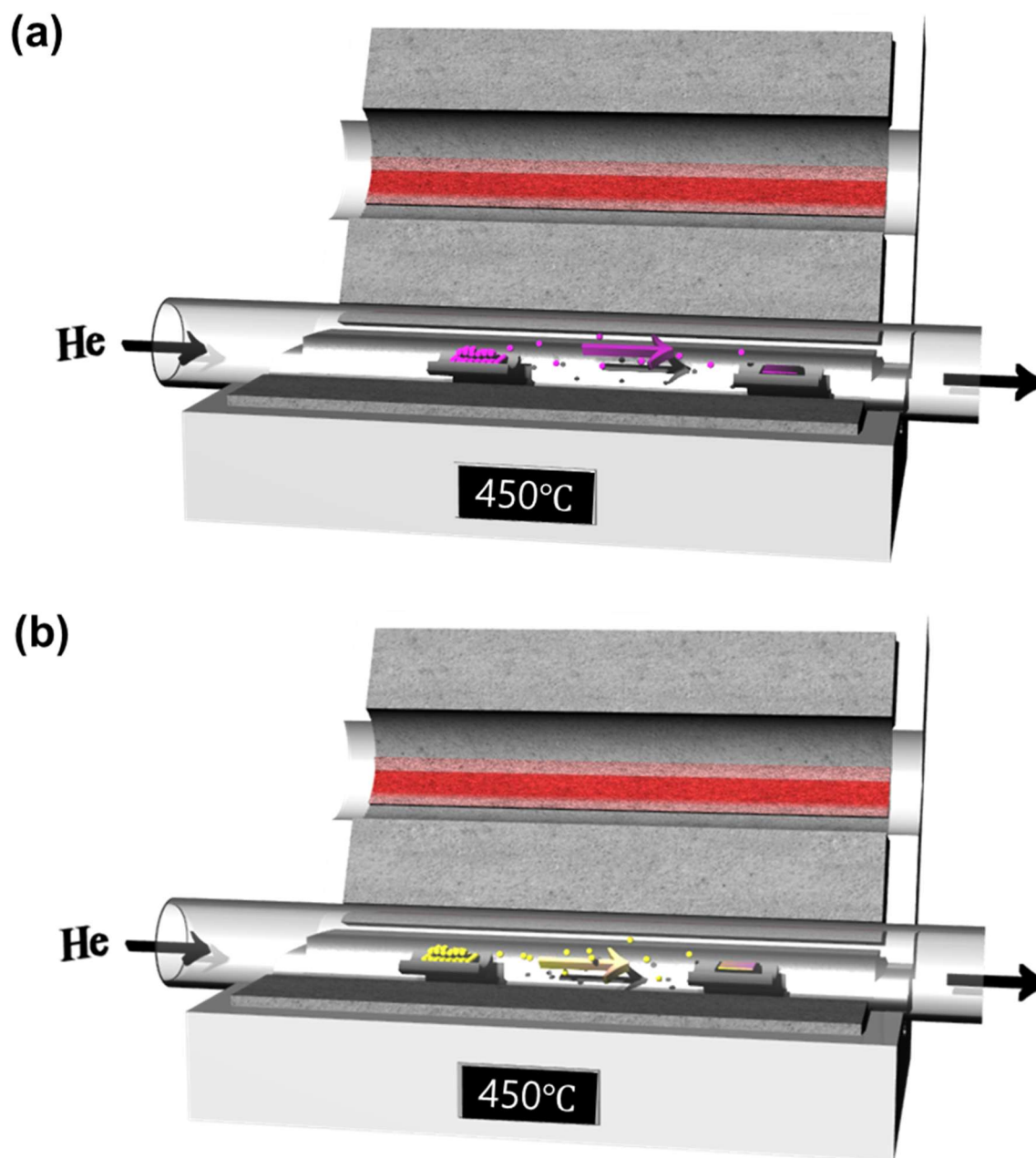
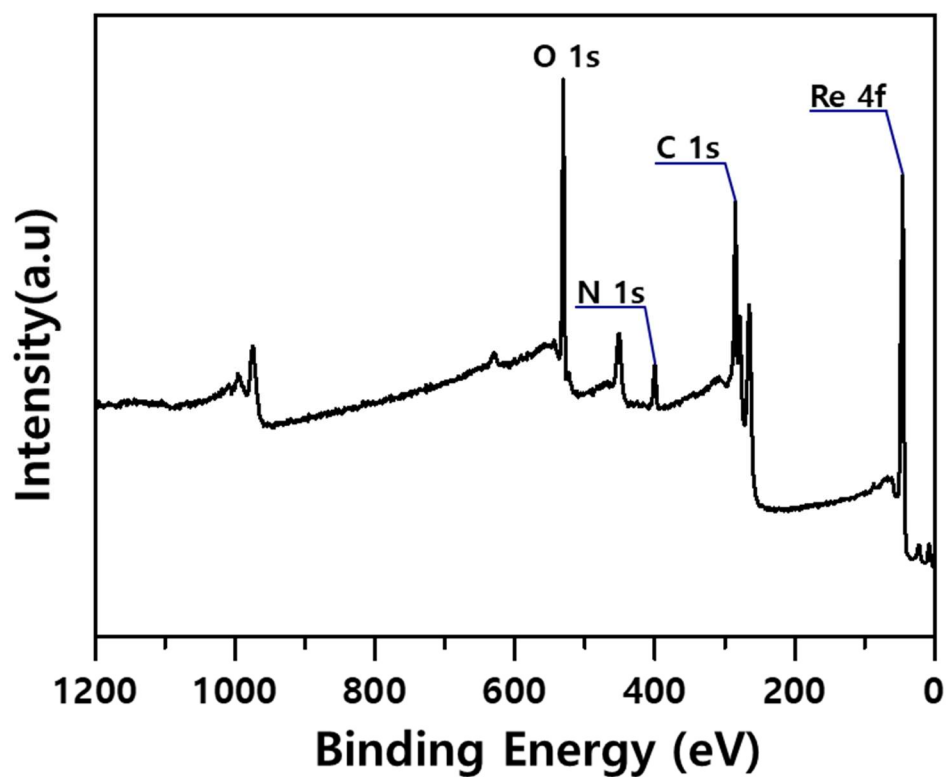


Figure S1. Schematic illustration of (a) ReO_3 and (b) ReS_2

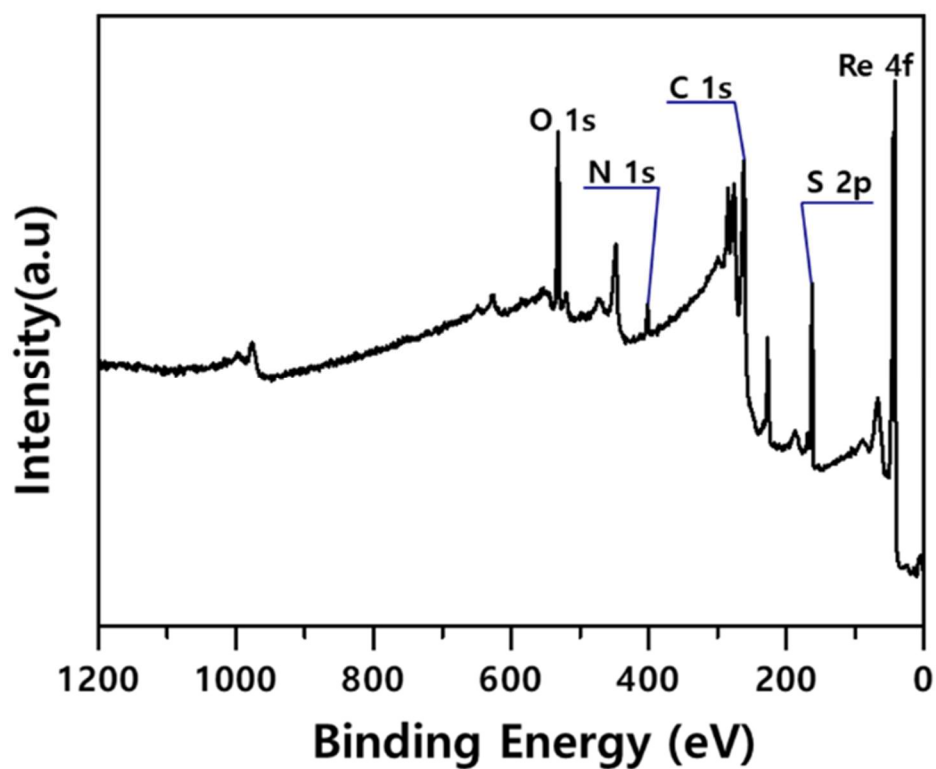
Figure S2 (a)



Name	Start BE(eV)	Peak BE(eV)	End BE(eV)	Height(CPS)	FWHM(eV)	Area(CPS.eV)	Atomic(%)
C1s	291.18	284.6	282.68	46884.91	1.92	106083.4	47.06
N1s	405.48	400.32	395.98	8809.87	3.92	36481.07	9.55
O1s	535.88	531.05	527.48	76730.33	1.96	183265.6	31.84
Re4f	52.28	45.74	40.28	100118.7	1.55	321572.9	11.55

Figure S2 (a) X-ray photoelectron survey spectrum for the ReO_3 nanorods grown at 450°C under He 250 sccm for 1h.

Figure S2 (b)



Name	Start BE (eV)	Peak BE (eV)	End BE (eV)	Height(CPS)	FWHM(eV)	Area(CPS.eV)	Atomic(%)
C1s	290.48	284.6	282.28	16131.41	1.66	36152.67	21.17
N1s	405.18	402.04	397.68	7338.37	1.58	15296.21	5.29
O1s	536.88	531.95	528.58	39362.39	2.35	101574.1	23.31
Re4f	50.58	42.22	38.98	164419.5	0.92	375003.2	17.75
S2p	172.38	162.69	159.38	43456.74	1.97	98120.86	32.47

Figure S2 (b) X-ray photoelectron survey spectrum for the ReS_2 nanosheets grown at 500°C under He 10 sccm for 20 minutes.

Table S1

Measurement	Atomic %		Atomic ratio
	Re	S	Re:S
XPS	35.35	64.65	1:1.83
SEM-EDX	33.09918	66.90082	1:2.02

Table S1 Atomic percent of ReS_2 nanosheets estimated by XPS and SEM-EDX measurement at 49 different spots.