

† Electronic Supporting Information (†ESI)

Ultrasonication Assisted Fabrication of Tungsten Sulfide/Tungstite Heterostructure
for ppb-level Ammonia Detection at Room Temperature

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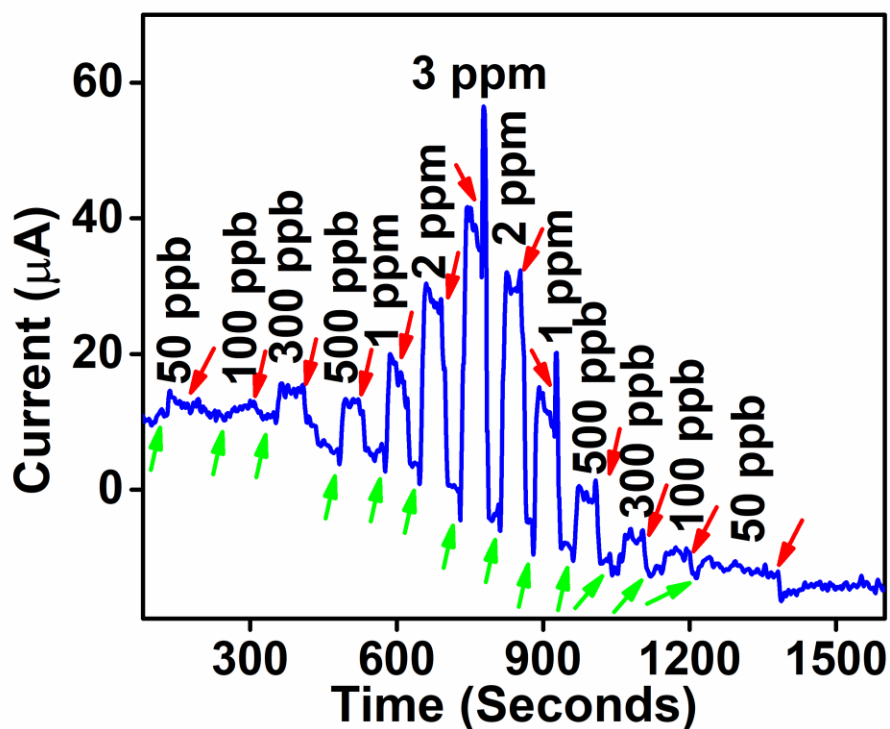
Table S1. Comparison of our sensor with recently reported room temperature chemiresistive sensing devices for NH₃ detection

Material	Measured Ammonia Range (in ppm)	Response (%)	Response Recovery (Seconds)	Time/Time	Experimental LOD (ppb)	Ref.	Year of Report
Polyaniline	1-100	11 @ 1 ppm	24/72 @ 100 ppm		1000	[S1]	2019
TiO ₂ /Ti ₃ C ₂ T _x	0.5-10	3.1 @ 10 ppm	33/277 @ 10 ppm		500	[S2]	2019
Au/Graphene	2-250	34 @ 25 ppm	224/178 @ 25 ppm		2000	[S3]	2019
RGO/W S ₂	10-50	121 @ 10 ppm	60/300 @ 30 ppm		10000	[S4]	2019
MoS ₂ /CuO	5-500	47 @ 100 ppm	17/26 @ 100 ppm		5000	[S5]	2018
PANI/CeO ₂	0.16-50	262.7 @ 50 ppm	~348/1020 @ 10 ppm		16	[S6]	2018
RGO/CuFe ₂ O ₄	5-200	2 @ 5 ppm	3/6 @ 50 ppm		5	[S7]	2018
WS ₂ /W O ₃ .H ₂ O	0.05-3	11.36 @50 ppb	55.76/23.36 @2 ppm		50	This Work	2020

Supplementary Note 1

Gas sensing data for the device is shown in Figure S1. The unexpected behavior for 3 ppm ammonia is repeatable and hence we suggest the operating range of the device to be 50 ppb – 2 ppm.

Figure S1. Gas sensing data of the $WS_2/WO_3.H_2O$ based gas sensor towards ammonia gas (green arrow: ammonia gas on; red arrow: ammonia gas off and dry air on).



Supplementary References

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