Electronic Supporting Information

Polyaniline/(Ta$_2$O$_5$-SnO$_2$) Hybrid Nanocomposite for Efficient Room Temperature CO Gas Sensing

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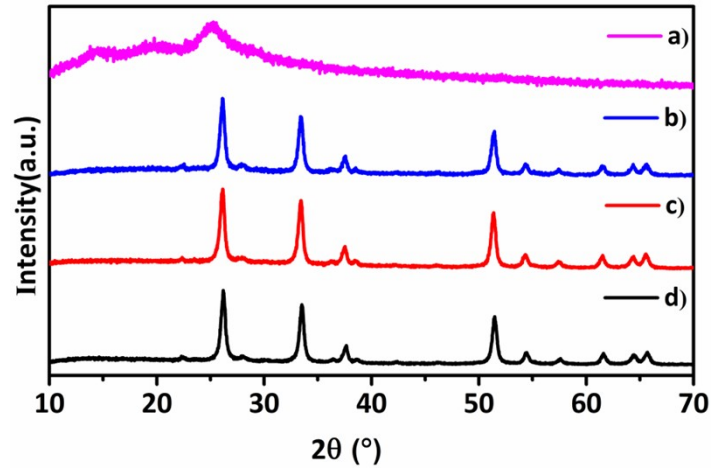[b] *Graduate Studies, Manipal Academy of Higher Education, Manipal - 576104, Karnataka, India.*

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Table S1: Dynamic range of sense (maximum and minimum CO gas response) for each composition at different operating temperatures.

Composition	Operating temp. (°C)	% response	Response time (s)	Recovery time (s)
TaSn:PANI(1:0.25)	RRTT	4.7	15	13
	50	4.2	15	12
	75	4.1	16	14
	100	2.3	13	15
	125	0.09	16	18
	150	No response	-	-
TaSn:PANI(1:0.50)	RRTT	5.2	14	13
	50	4.6	18	15
	75	4.2	15	14
	100	2.9	13	16
	125	1.5	14	15
	150	No response	-	-
TaSn:PANI(1:0.75)	RRTT	3.8	22	20
	50	3.5	23	22
	75	2.3	20	24
	100	1.8	22	21
	125	No response	-	-
	150	No response	-	-

Figure S1: p-XRD patterns of a) PANI, b) TaSn:PANI (1:0.75), c) TaSn:PANI (1:0.25), d) (Ta$_2$O$_5$-SnO$_2$).
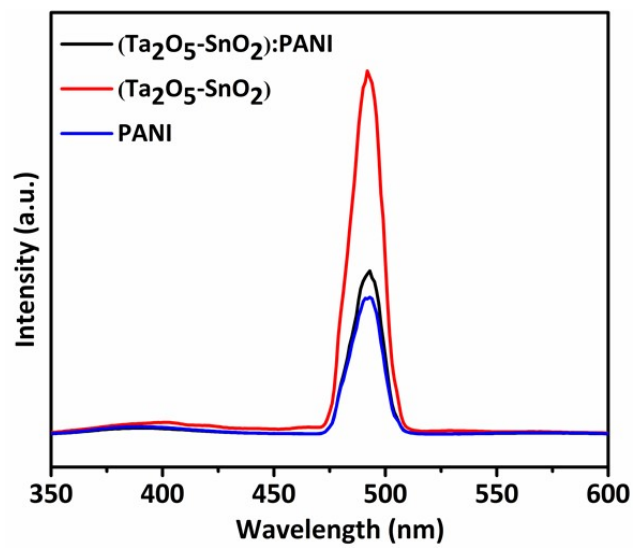
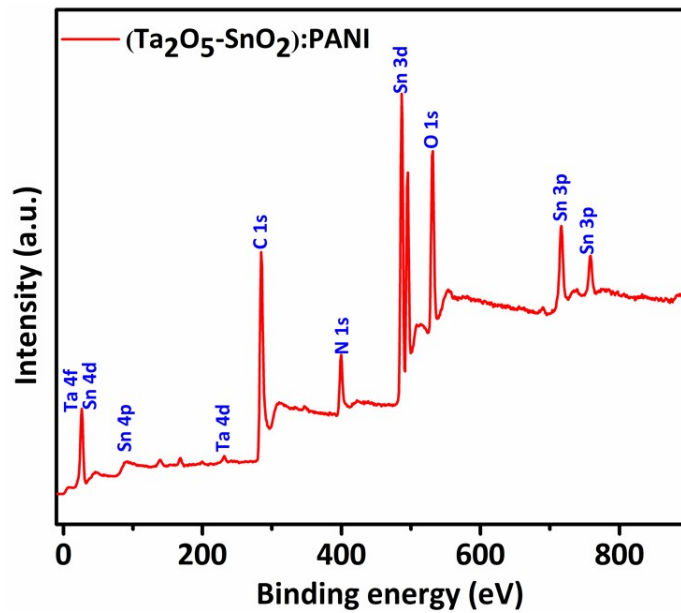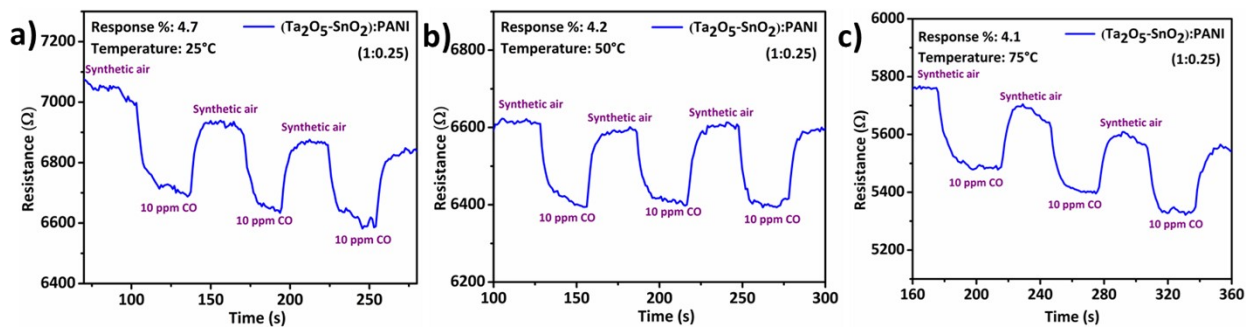**Figure S2: PL emission spectra of hybrid TaSn:PANI (1:0.50), PANI and (Ta$_2$O$_5$-SnO$_2$).**
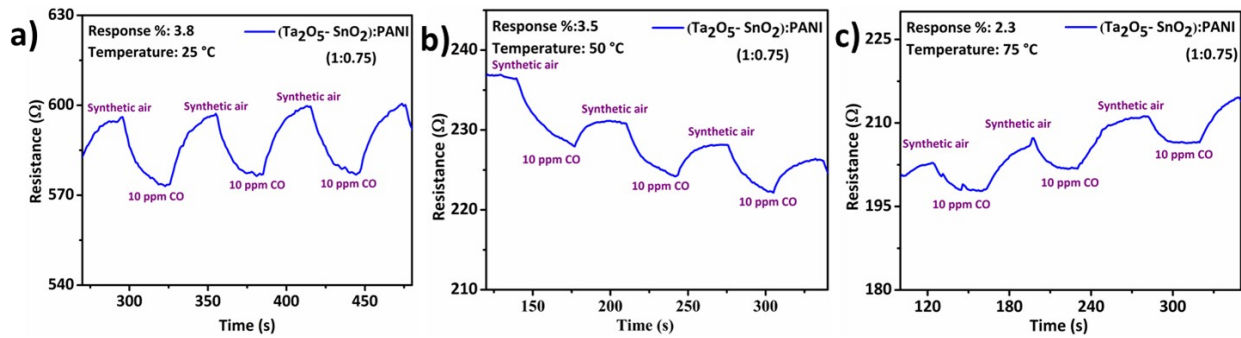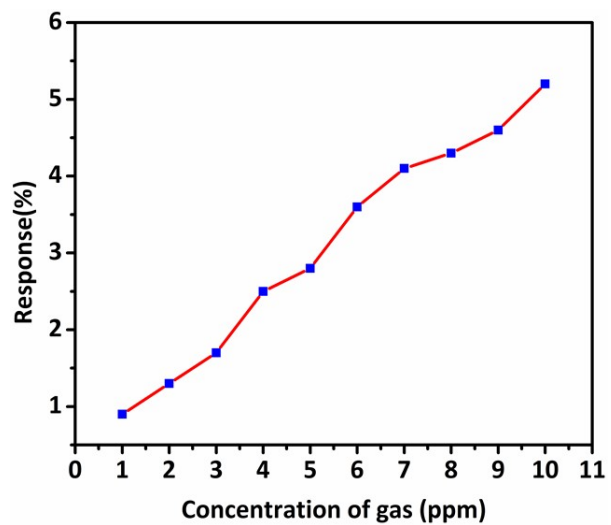
Figure S3: XPS survey spectra of hybrid TaSn:PANI (1:0.50) composite.

Figure S4: Gas sensing results of TaSn:PANI (1:0.25) nano composite for the detection of 10 ppm CO gas at a) RT °C, b) 50 °C, c) 75 °C.
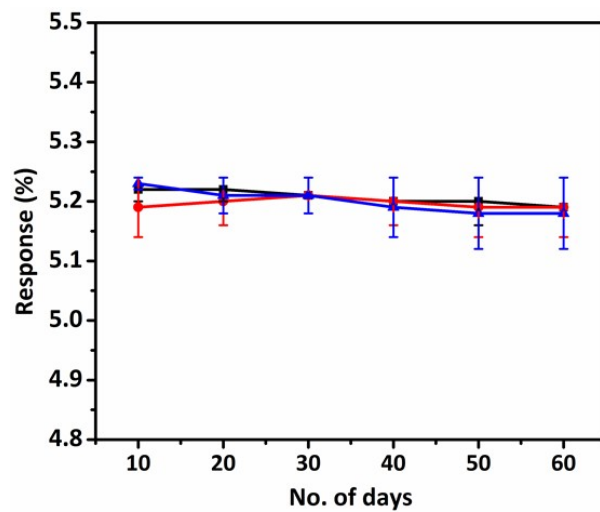
Figure S5: Gas sensing results of TaSn:PANI (1:0.75) hybrid nanocomposite for the detection of 10 ppm CO gas at a) RT °C, b) 50 °C, c) 75 °C.

Figure S6: Sensor response with reference to concentration of CO.

Figure S7: Sensor stability studies for 3 sensors as a function of time with error calculation.