Supporting information

High Efficiency Room Temperature Detection of NO_2 Gas Based on Ultrathin Metals / Graphene Devices

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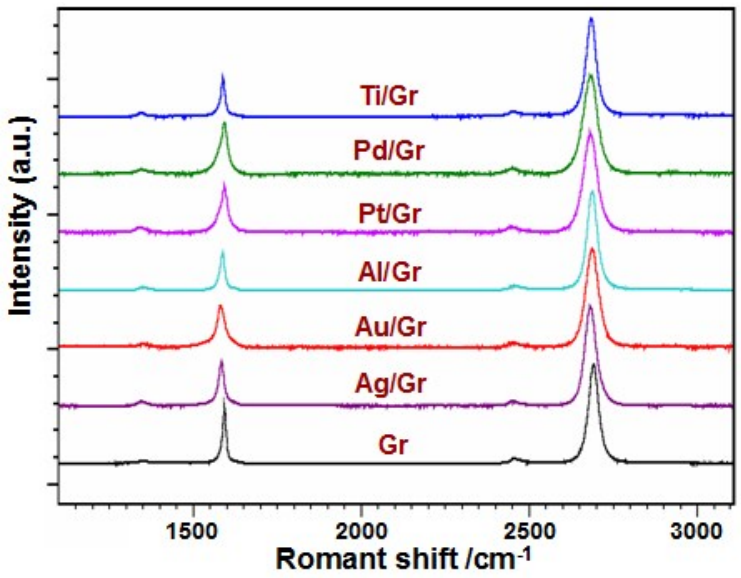

Figure S1. Roman spectra for monolayer area of graphene channels for different devices identified by Ti/Gr, Pd/Gr, Pt/Gr, Al/Gr, Au/Gr, Ag/Gr and Gr.

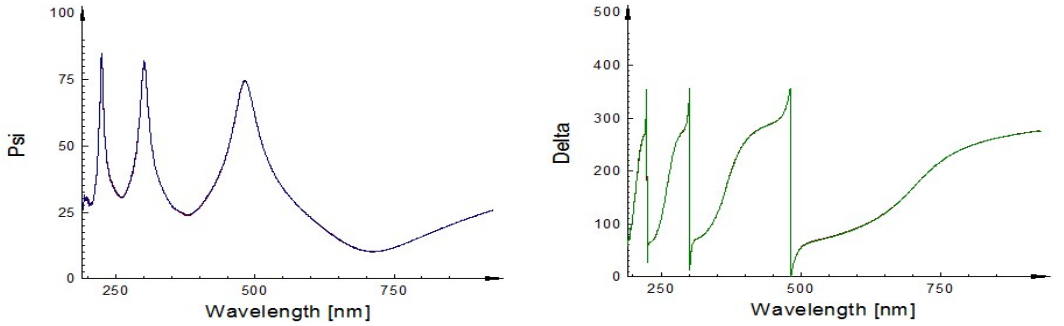

Figure S2. Ellipsometry fit curves of 1nm thick Au deposited on graphene.

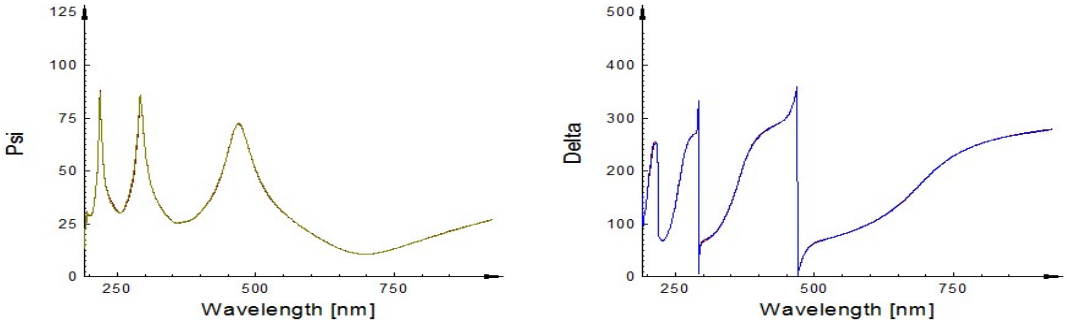

Figure S3. Ellipsometry fit curves of 1nm thick Pt deposited on graphene.

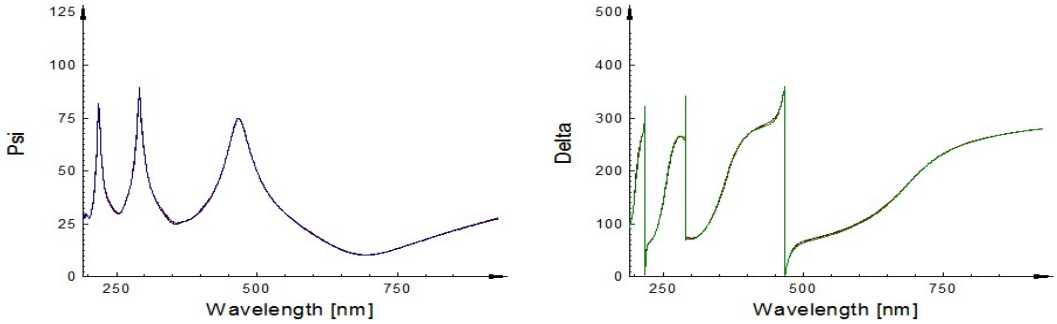

Figure S4. Ellipsometry fit curves of 1nm thick Pd deposited on graphene.

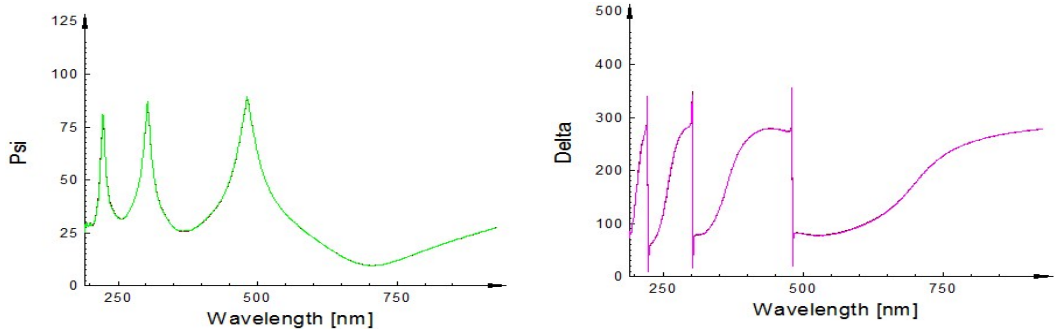

Figure S5. Ellipsometry fit curves of 1nm thick Ti deposited on graphene.

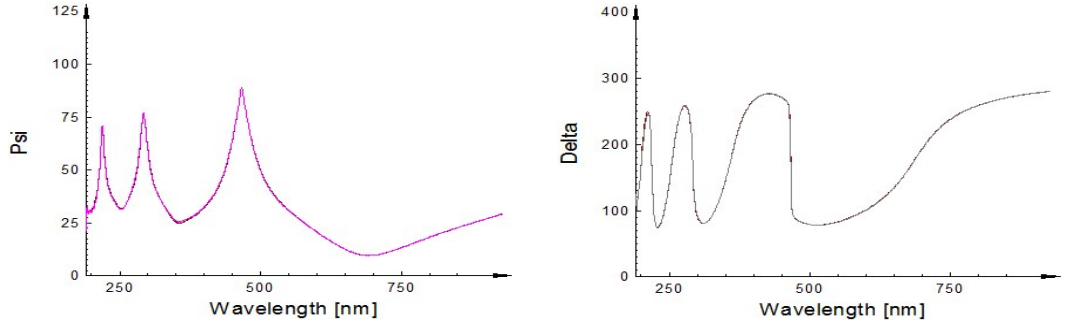

Figure S6. Ellipsometry fit curves of 1nm thick Al deposited on graphene.

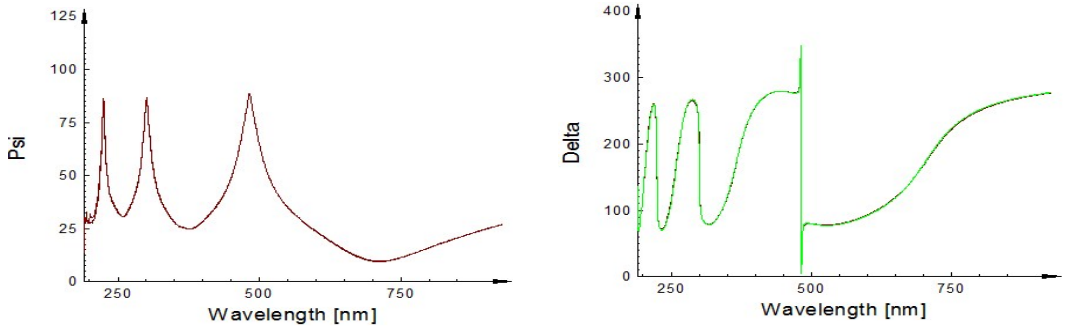

Figure S7. Ellipsometry fit curves of 1nm thick Ag deposited on graphene.

Table S1. Ellipsometry fitting informations of devices.

Device sample	Au/Gr	Pt/Gr	Pd/Gr	Ti/Gr	Al/Gr	Ag/Gr
Fitting thickness of metal film (nm)	0.91	1.03	0.97	1.3	0.8	0.89
Fitting thickness of underlying graphene (nm)	0.31	0.39	0.31	0.34	0.35	0.34
Fitting thickness of underlying SiO_2 (nm)	302.2	308.7	304	311.8	305.3	315.4
Mean square error of Ellipsometry fitting	1.059	1.233	1.88	1.64	1.16	1.561

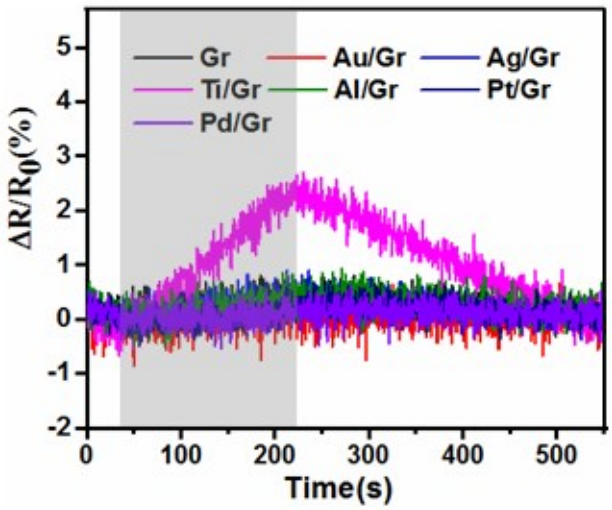

Figure S8. Sensitivity curves for Gr, Au/Gr, Ag/Gr, Ti/Gr, Al/Gr, Pt/Gr and Pd/Gr devices for 3-minutes exposure to 400ppm NH_3 at RT. The gray area represents 3 minutes exposure to NH_3.

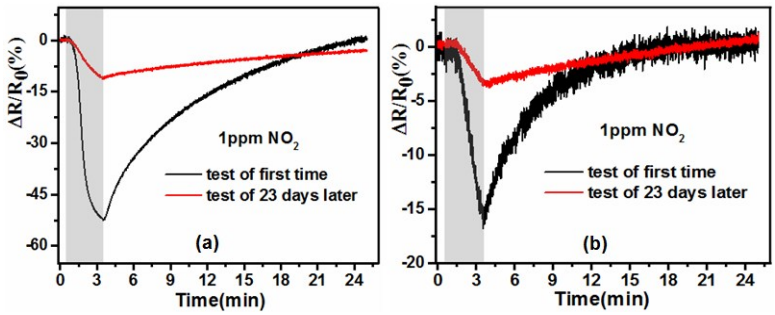

Figure S9 The sensitivity curves of the Pt/Gr (a) and Ti/Gr (b) devices for the initial test and after 23 days exposure to the ambient circumstances. The gray area represents 3-minutes exposure to 1 ppm NO2 gas.