Supporting Information

Investigating Photoresponsivity of Graphene-Silver Hybrid Nanomaterials in the Ultraviolet

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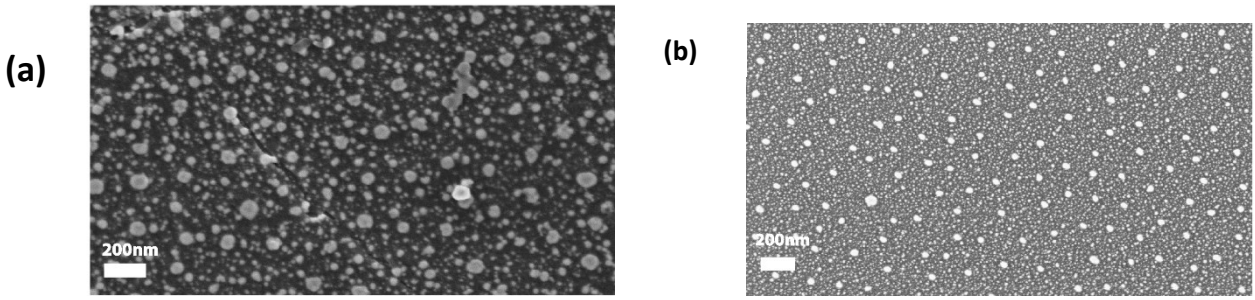

Figure S1: Scanning electron micrographs of (a) AG 60 with particle size 60nm and spacing 110nm. (b) AU 50 with particle size 50nm and spacing 110nm.

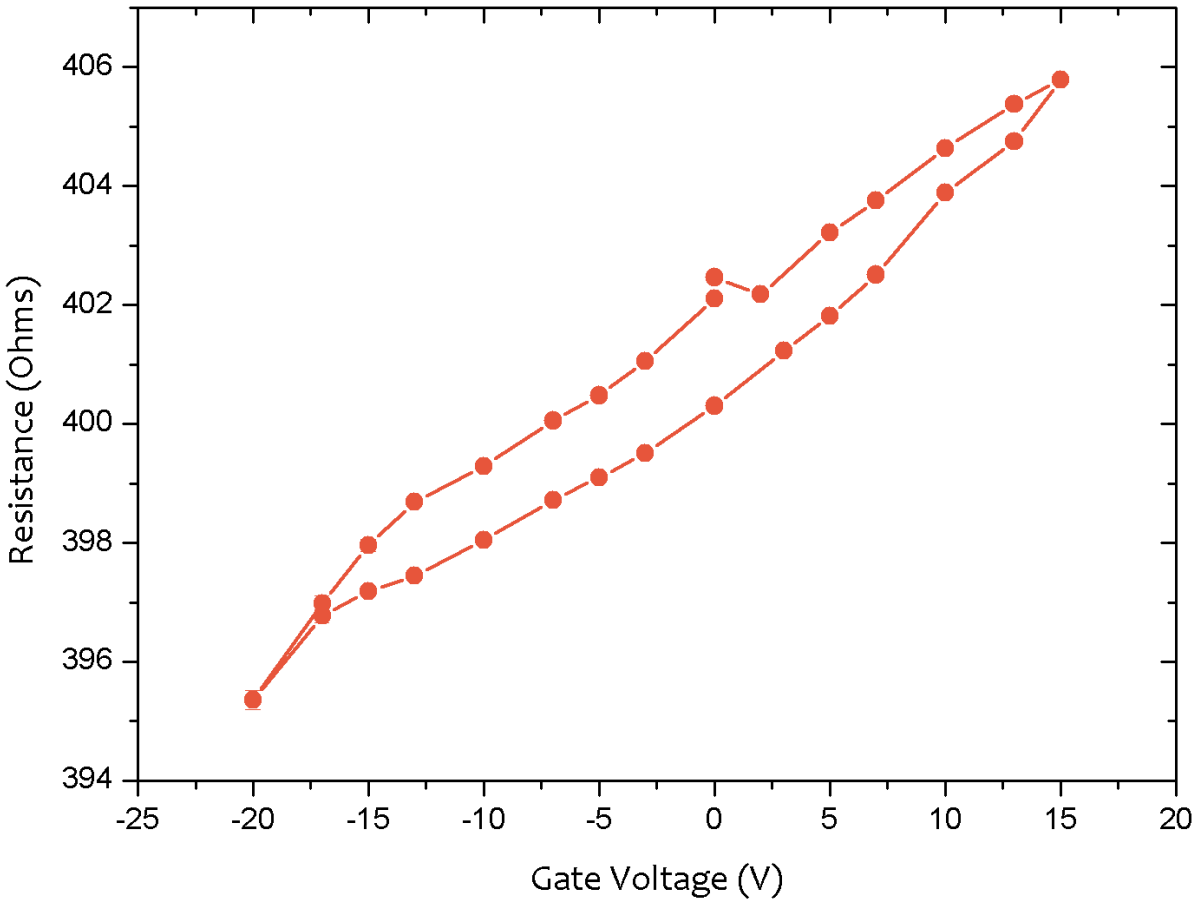

Figure S2: Resistance versus gate voltage for AG 60 device in dark conditions. The change in resistance is very less accompanied with onset of gate leakage current around 20V.

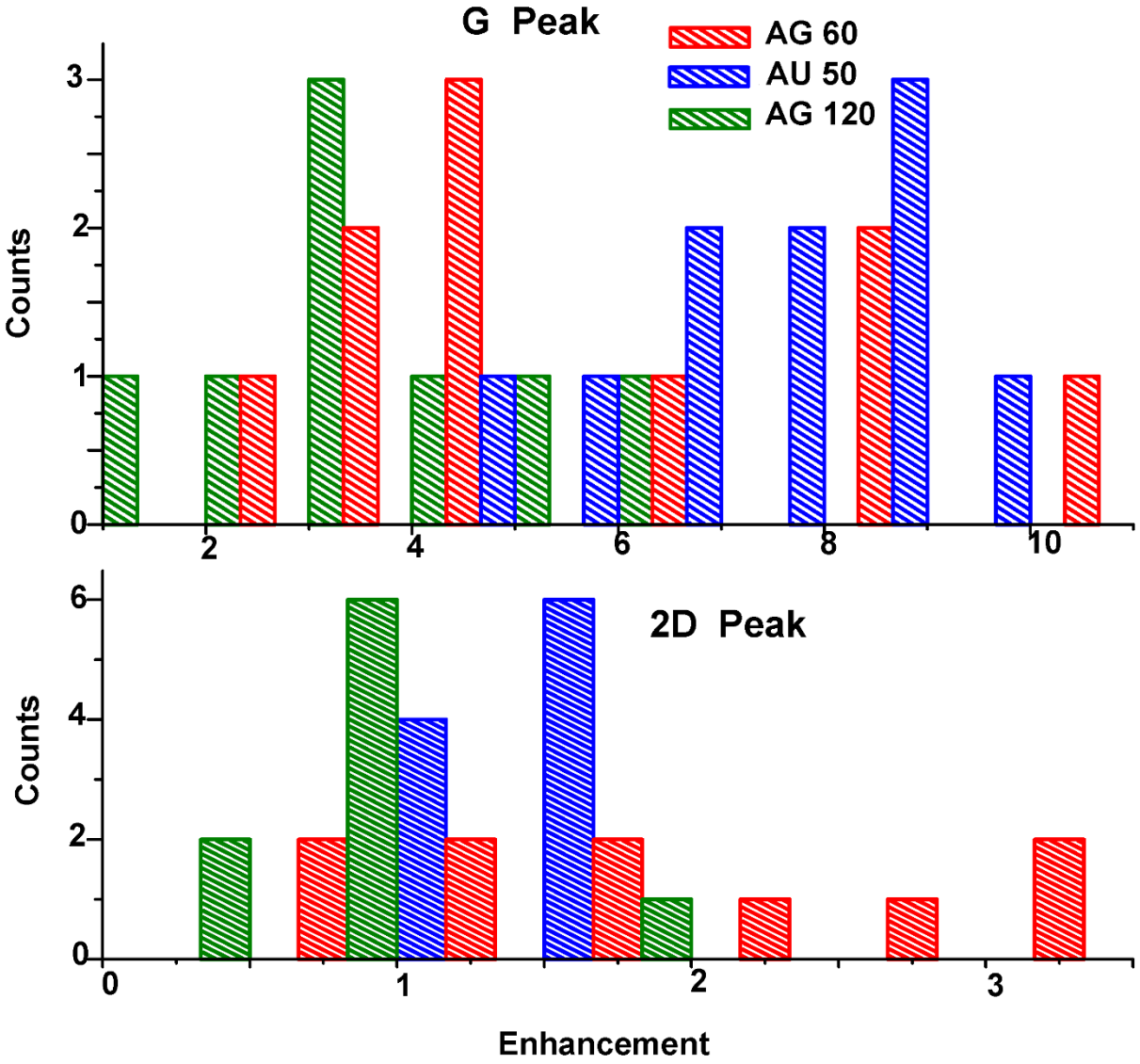

Figure S3: Histogram of enhancement for G and the 2D peaks. X axis shows the enhancement factor (area under curve for G or 2D peak for the three devices scaled by corresponding area from single layer graphene control device). The wide range of enhancements is due to use of large area single layer graphene which suffers wear and tear during the transfer process and non-uniformity of the underlying plasmonic layer.

Metal	I_{2D}/I_G	A_{2D}/A_G	$\Delta\omega_{2D}/\Delta\omega_G$
Bare Graphene	1.63	3.44	-
AG 60	1.53	1.31	0.0716
AU 50	1.12	0.728	92.63
AG 120	0.56	0.769	13.82

Table T1: Ratio of intensities, area under the curve and peak shift extracted from Raman spectra of the devices.

Metal	Doping		Strain		$\Delta\omega_{2D}/\Delta\omega_G$ Doping	$\Delta\omega_{2D}/\Delta\omega_G$ Strain
	ω_{2D}	ω_G	ω_{2D}	ω_G		
SLG	2680	1586	2678	1582		
AG 60	2679	1591.5	2679	1582	0.2857	0.3
AU 50	2684	1591	2663	1575	0.8	2.14
AG 120	2679	1588	2676	1581	0.5	2

Table T2: Separating contributions and mapping peak positions due to strain and doping in our devices.