Supplementary Information for

Lead (Pb) interfacing with epitaxial graphene

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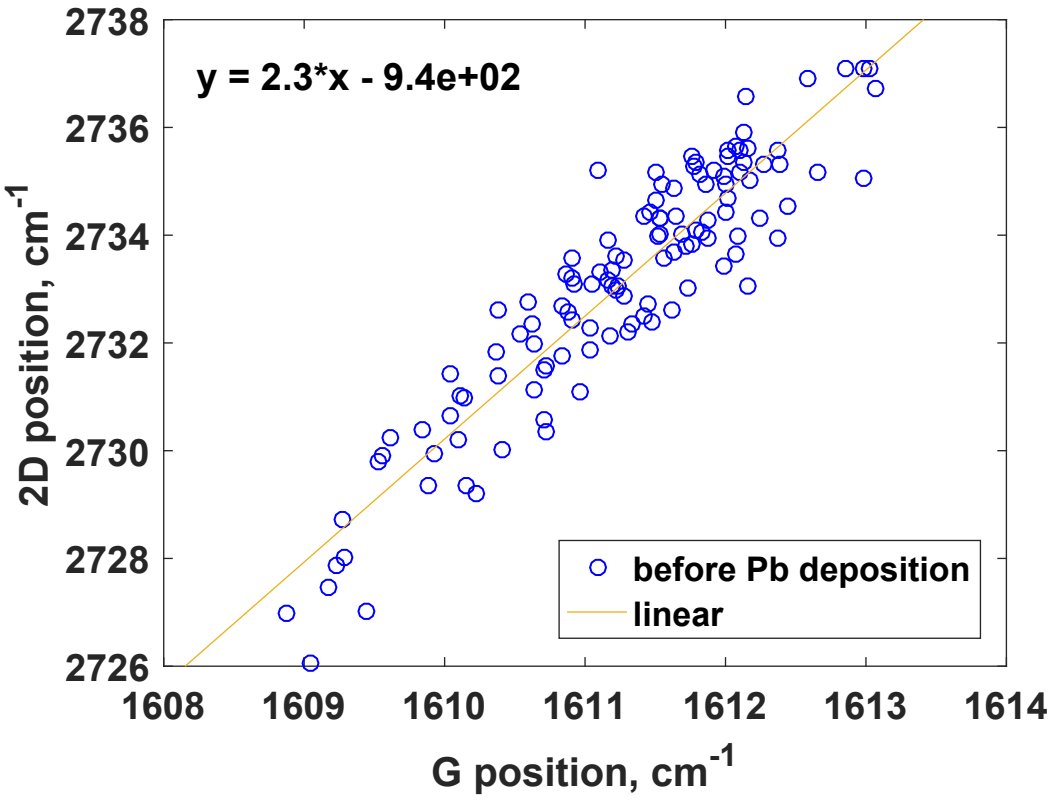

Figure S1. Linear regression analysis of experimental data of the pristine epitaxial graphene sample before Pb electrodeposition

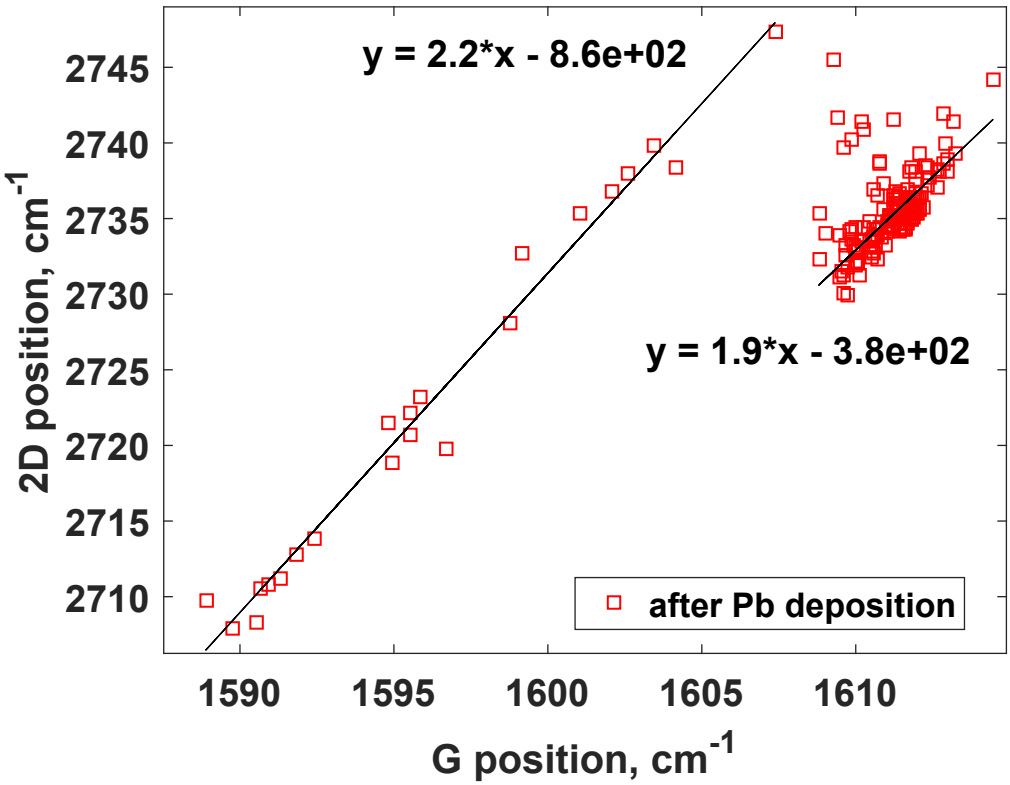

Figure S2. Linear regression analysis of experimental data corresponding to 1ML and 2 ML regions of the epitaxial graphene sample after Pb electrodeposition.

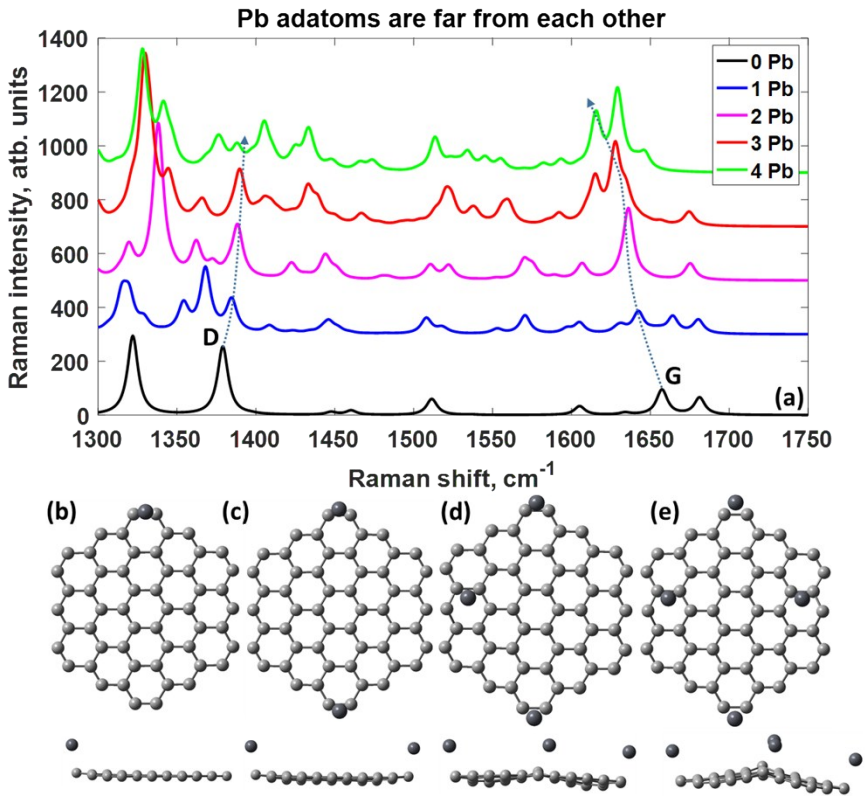

Figure S3. (a) Calculated Raman spectra of nano-sized graphene before and after interaction with Lead (Pb) species. Bottom panel displays optimized geometrical configurations (top view and side view) of the graphene after interaction with different number of Pb adatoms: (b) 1 Pb, (c) 2 Pb, (d) 3Pb and (e) 4 Pb. In should be mentioned that prior to optimization the Pb adatoms onto graphene plane were located as far as possible each other.

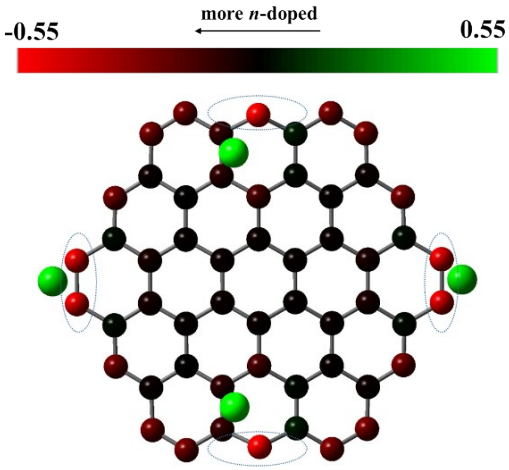

Figure S4. Charge distributions on nano-sized graphene after interaction with Pb adatoms. The colour on the atoms represents different values of the charge (green balls are the Pb adatoms placed on graphene).

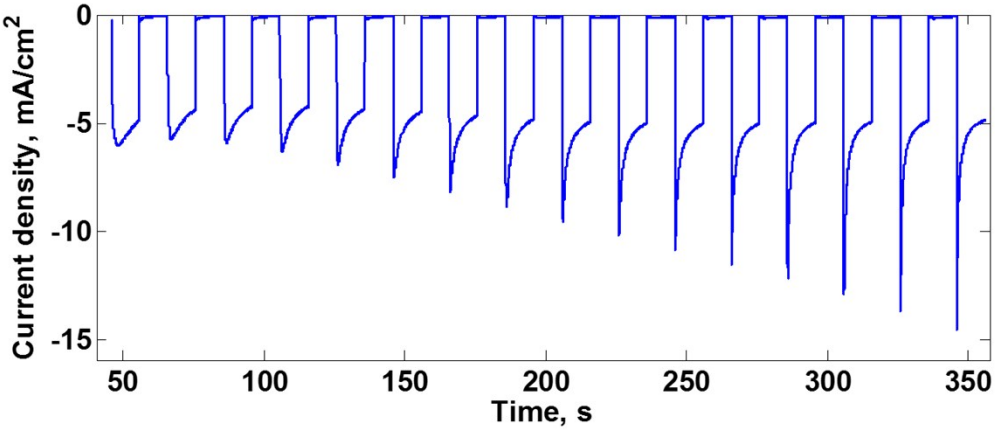

Figure S5. Chronoamperometric curve for the electrodeposition of Pb (from 0.1mM $Pb(NO_3)_2$ in 0.1 M acetate buffer) on epitaxial graphene under potential stepping from -0.2V to -0.5-0.64 V

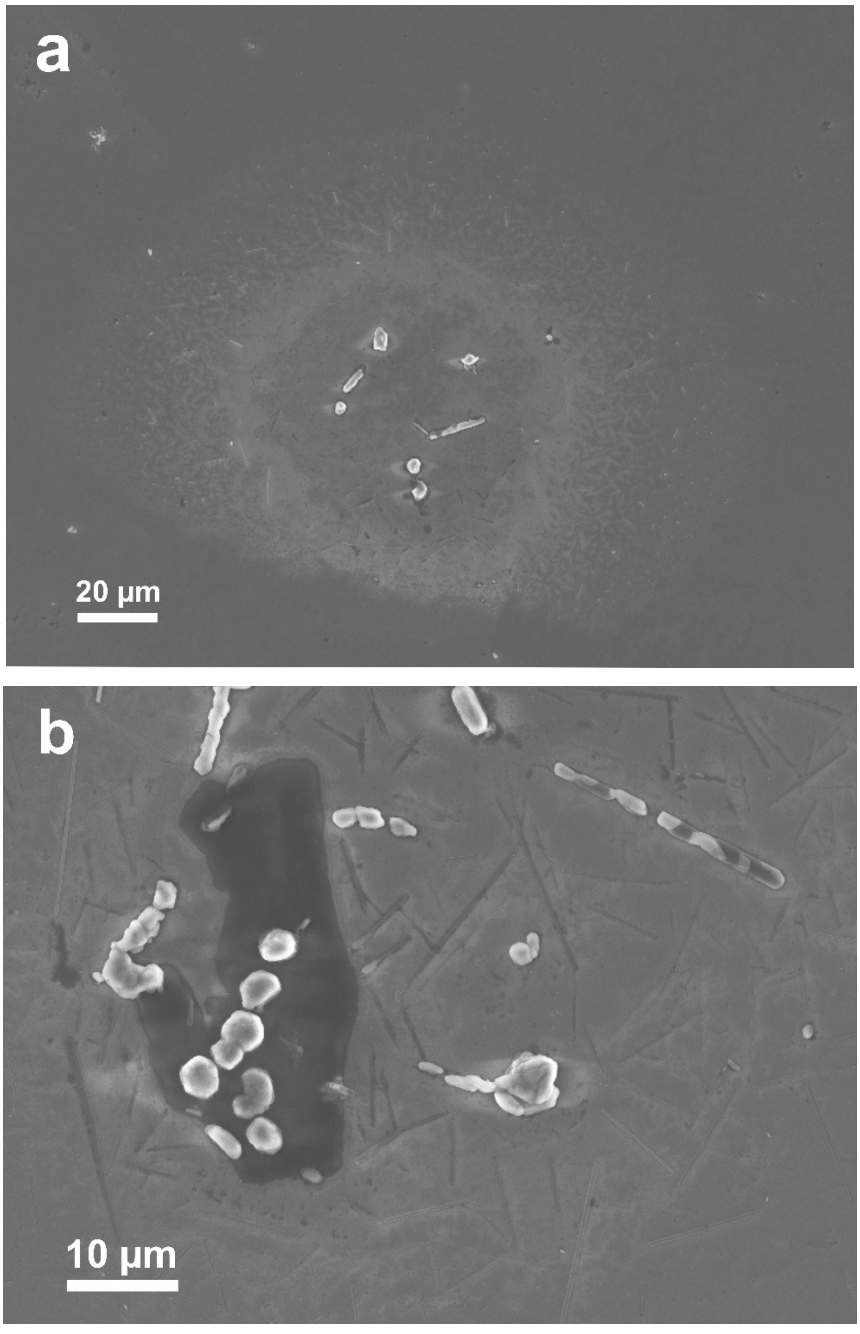

Figure S6. SEM micrographs of the electrodeposits produced from the 0.1 M acetate buffer solution containing 0.1mM $Pb(NO_3)_2$ on the epitaxial graphene at potential -0.6 V for 20 s. a) panel represents SEM image with scale bar of 20 µm, b) panel demonstrates the SEM micrograph with scale bar of 10 µm.