## **Supporting Information**

## **Electrical and Electrochemical Properties of Graphene Modulated through**

## **Surface Functionalization**

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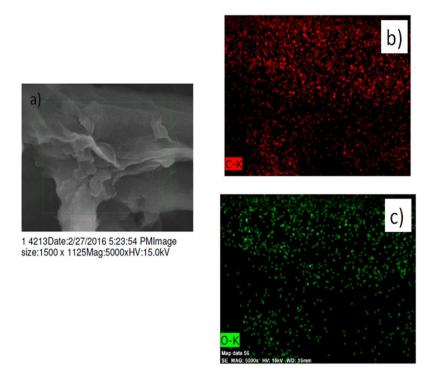


Figure 1: a) FESEM image of  $GO_1$  and (b & c) elemental mapping of Carbon (Red dots) and Oxygen (Green dots)

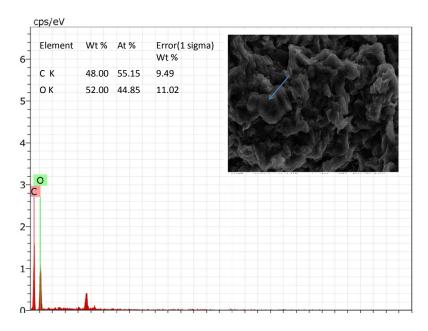


Figure 2: Energy dispersive spectra (EDX) of GO<sub>1</sub>

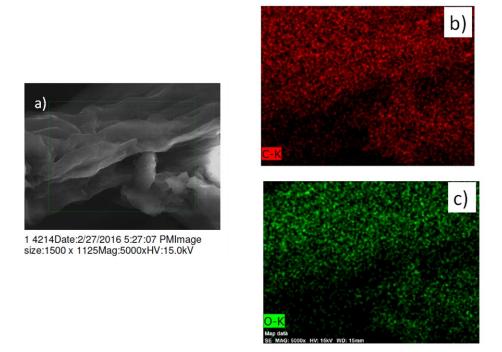


Figure 3: a) FESEM image of  $GO_2$  and (b & c) elemental mapping of Carbon (Red dots) and Oxygen (Green dots)

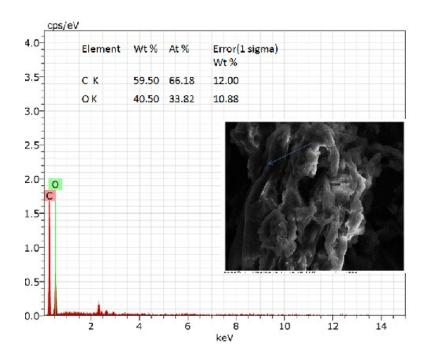


Figure 4: Energy dispersive spectra (EDX) of GO<sub>2</sub>

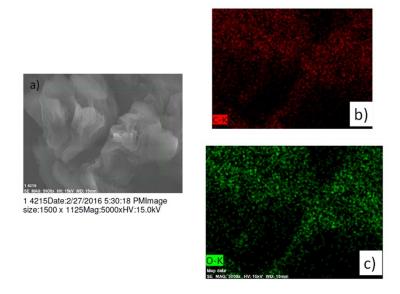


Figure 5: a) FESEM image of  $GO_3$  and (b & c) elemental mapping of Carbon (Red dots) and Oxygen (Green dots)

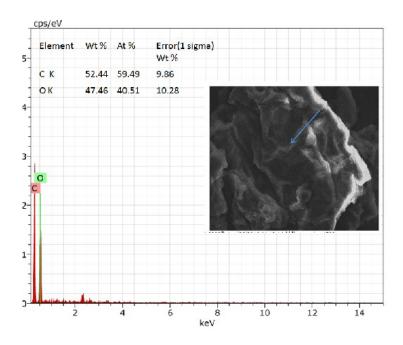


Figure 6: Energy dispersive spectra (EDX) of GO<sub>3</sub>

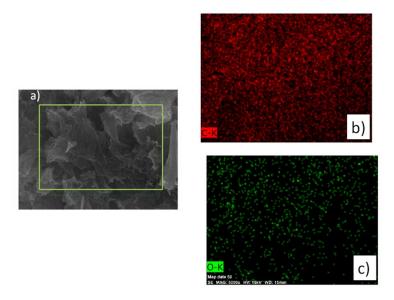


Figure 7: a) FESEM image of RGO and (b & c) elemental mapping of Carbon (Red dots) and Oxygen (Green dots)

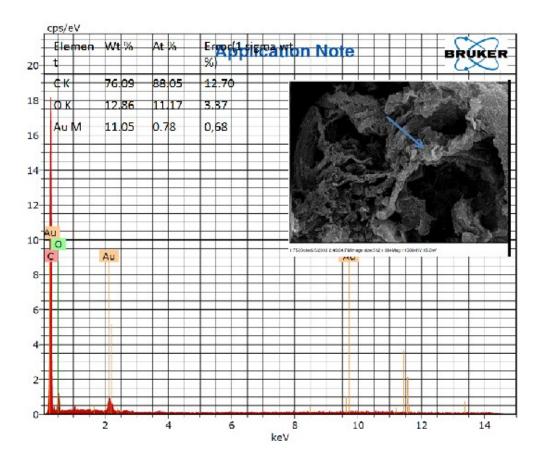


Figure 8: Energy dispersive spectra (EDX) of RGO

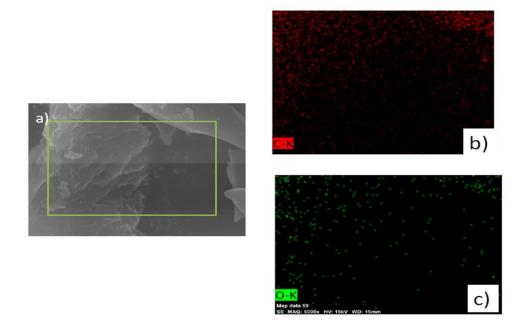


Figure 9: a) FESEM image of RSGO and (b & c) elemental mapping of Carbon (Red dots) and Oxygen (Green dots)

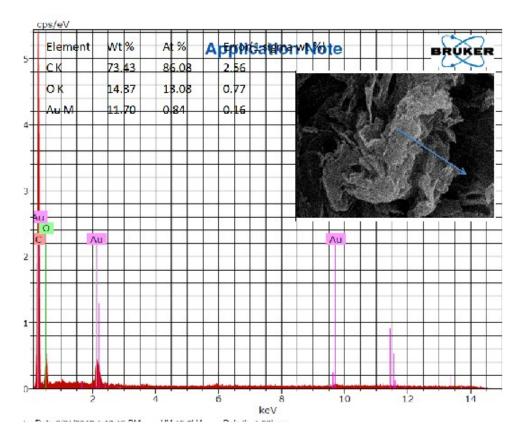


Figure 10: Energy dispersive spectra (EDX) of RSGO

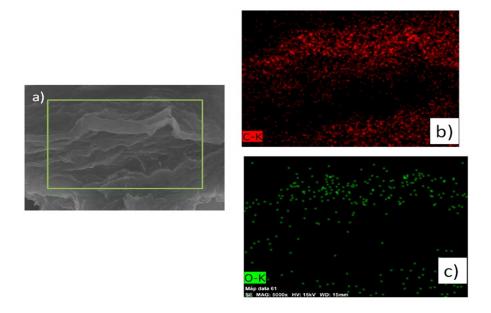


Figure 11: a) FESEM image of  $RGO_1$  and (b & c) elemental mapping of Carbon (Red dots) and Oxygen (Green dots)

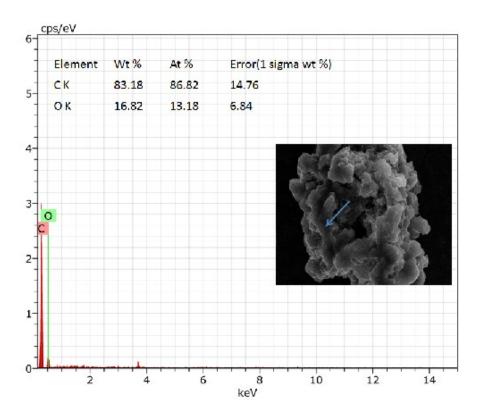


Figure 12: Energy dispersive spectra (EDX) of RGO<sub>1</sub>

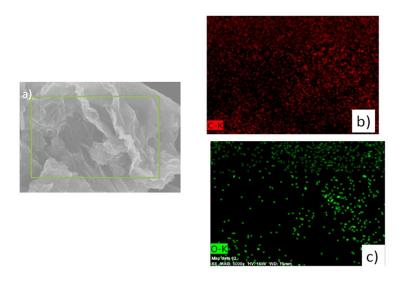


Figure 13: a) FESEM image of  $RGO_2$  and (b & c) elemental mapping of Carbon (Red dots) and Oxygen (Green dots

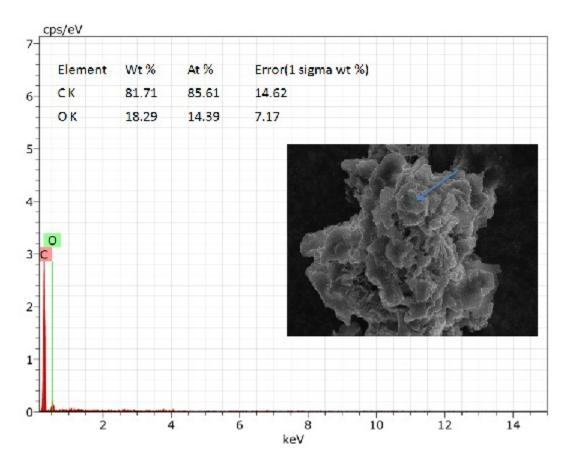


Figure 14: Energy dispersive spectra (EDX) of RGO<sub>2</sub>

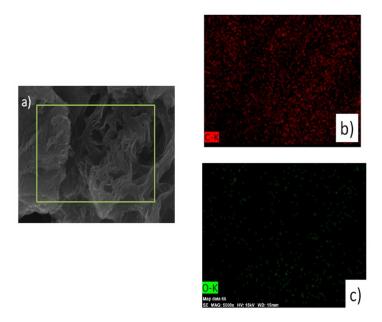


Figure 15: a) FESEM image of  $RGO_3$  and (b & c) elemental mapping of Carbon (Red dots) and Oxygen (Green dots

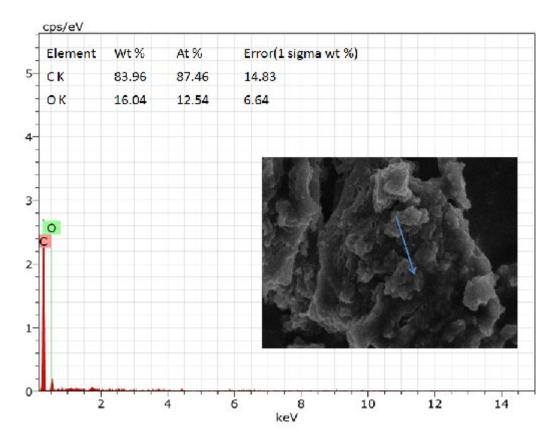


Figure 16: Energy dispersive spectra (EDX) of RGO<sub>3</sub>