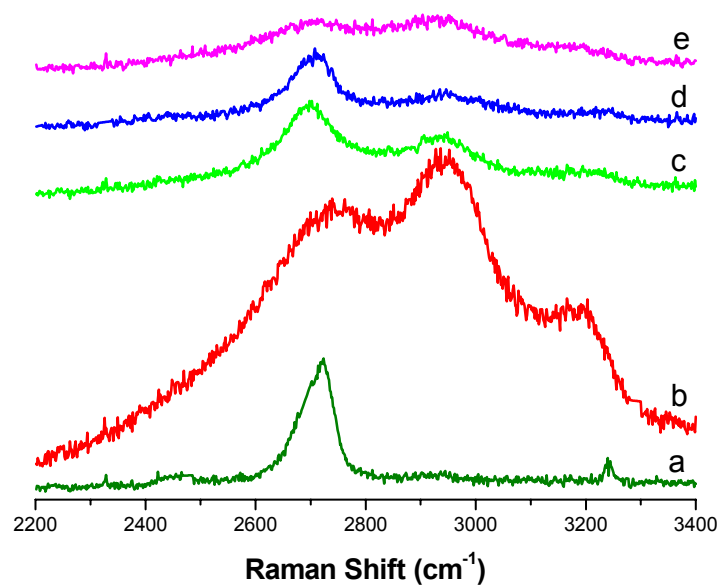
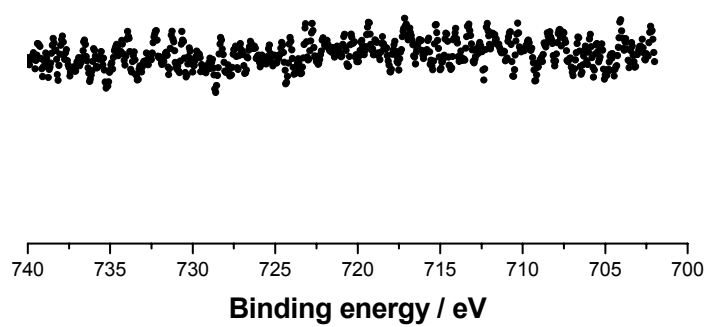


### Supplementary information



**SI 1.** Second-order Raman spectra of (a) Gr, (b) GO, (c) GN1, (d) GN2 and (e) GN3.



**SI 2.** XPS spectra of Fe 2p core level for sample GNF1

