

List of Abbreviations

Am-GO	Amino functionalized graphene oxide
AFM	Atomic force microscopy
BE	B inding energy
BET	B runauer-Emmett-Teller
BzA	B enzyl alcohol
BzH	B enzaldehyde
CMG	Chemically modified graphene
CNTs	Carbon nanotubes
CP	Cross polarization
CVD	Chemical vapour deposition
DETA	D iethyle triamine
DMF	D imethylformamide
DMSO	D imethyl sulphoxide
DRIFT	D iffuse reflectance infrared fourier transform
ETV	E lectrothermal vaporization
ED	E thylene Diamine
FET	F ield-effect transistors
FLG	F ew layered graphene
FTIR	F ourier-transform infrared
GA	G luconic acid
GC	G as chromatography
GO	G raphene oxide
H ₂ PtCl ₆	Chloroplatinic acid
HAuCl ₄	T etrachloro(hydrido)gold

HF	H artree-Fock
ICP-OES	I nductively coupled plasma optical emission spectroscopy
IL-NH ₂	I onic liquid 1-(3-aminopropyl)-3-methylimidazolium bromide
LEDs	L ight-emitting diodes
MO	M olecular orbitals
MOFs	M etal-organic frameworks
MNPs	M etal nanoparticles
NMR	N uclear magnetic resonance
PPD	<i>p</i> -Phenylenediamine
PAC	P henylacetaldehyde
Pd(OAc) ₂	P alladium acetate
PVA	P olyvinyl alcohol
rGO	R educed GO
TEM	T ransmission electron microscopy
TGA	T hermogravimetric analysis
UV/Vis	U ltraviolet/ V isible
XPS	X -ray photoelectron spectroscopy
XRD	X -ray diffraction pattern