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List of Abbreviations and Symbols

Abbreviation	Nomenclature
EDLC	Electrical double layer capacitance
SC	Supercapacitor
TEABF ₄	Tetraethylammonium tetrafluoroborate
CAN	Acetonitrile
EMIM	1-ethyl-3-methylimidazolium
PEO	Polyethylene oxide
PVA	Polyvinyl alcohol
PANI/PA	Polyaniline
PPY	Polypyrrole
PEDOT	Poly 3,4-ethylenedioxythiophene
ST	Synthesis temperature (°C)
DBSA	4-Dodecylbenzenesulfonic acid
CSA	Camphorsulfonic acid
PTSA	Para toluene sulfonic acid
APS	Ammonium persulfate
ED	Energy density
XRD	X-ray diffraction
FTIR	Fourier transform infrared spectroscopy
XPS	X-ray photoelectron spectroscopy
FESEM	Field emission scanning electron microscopy
EDX	Energy dispersive X-ray spectroscopy
CV	Cyclic voltammetry
CD	Charge-discharge
EIS	Electrochemical impedance spectroscopy
AN	Aniline
PTFE	Polytetrafluoroethylene
PVDF	Polyvinylidene fluoride
SPEEK	Sulfonated polyether ether ketone
NMP	N-Methyl-2-pyrrolidone
DMSO	Dimethyl sulfoxide

PB	Prussian blue
MWCNT	Multi-walled carbon nano tubes
SWCNT	Single-walled carbon nano tubes
BCN	Boron carbonitrides
ACF	activated carbon fibers
CNF	carbon nanofibers
CGNR	Curly graphene nanoribbon
CF	Carbon fiber
NPCNF	Nitrogen, phosphorous codoped carbon nanofiber
g-C ₃ N ₄	Graphitic carbon nitride
EP	Electrochemical polymerization
IP	Interfacial polymerization
EDP	electrodeposition
GD	Galvanostatic deposition
ECD	Electrochemical deposition
COP	Chemical oxidative polymerization

Symbol	Nomenclature
C _{SP}	Specific Capacitance [Farad (F)]
Q	Electric charge (Coulomb)
V	Potential [Volt (V)]
ε _o	Permittivity of free space (8.854×10 ⁻¹² F/m)
A	Area of plate (m ²)
D	Distance between plates (m)
ε	Permittivity of the dielectric material
E	Energy stored [Watt.hour (Wh)]
P _{max}	Maximum power [Watt (W)]
C _{sp}	Specific capacitance (F/g)
D	Average crystallite size (nm)
K	Scherrer's constant
λ	Wavelength of X-ray (Å)
β _L	Full width at half maximum (radians)

Θ	Bragg angle
I	Current (A)
M	Mass (g)
t_c	Charging time (s)
t_d	Discharging time (s)
ΔV	Potential difference (V)
E_{sp}	Specific energy (Wh/kg)
P_{sp}	Specific power (W/kg)
R_{ct}	Charge transfer resistance (Ω)
f_k	Knee frequency (Hz)
τ_r	Relaxation time (s)

List of Abbreviations and Symbols

Abbreviation	Nomenclature
EDLC	Electrical double layer capacitance
SC	Supercapacitor
TEABF ₄	Tetraethylammonium tetrafluoroborate
CAN	Acetonitrile
EMIM	1-ethyl-3-methylimidazolium
PEO	Polyethylene oxide
PVA	Polyvinyl alcohol
PANI/PA	Polyaniline
PPY	Polypyrrole
PEDOT	Poly 3,4-ethylenedioxythiophene
ST	Synthesis temperature ($^{\circ}\text{C}$)
DBSA	4-Dodecylbenzenesulfonic acid
CSA	Camphorsulfonic acid
PTSA	Para toluene sulfonic acid
APS	Ammonium persulfate
ED	Energy density
XRD	X-ray diffraction
FTIR	Fourier transform infrared spectroscopy

XPS	X-ray photoelectron spectroscopy
FESEM	Field emission scanning electron microscopy
EDX	Energy dispersive X-ray spectroscopy
CV	Cyclic voltammetry
CD	Charge-discharge
EIS	Electrochemical impedance spectroscopy
AN	Aniline
PTFE	Polytetrafluoroethylene
PVDF	Polyvinylidene fluoride
SPEEK	Sulfonated polyether ether ketone
NMP	N-Methyl-2-pyrrolidone
DMSO	Dimethyl sulfoxide
PB	Prussian blue
MWCNT	Multi-walled carbon nano tubes
SWCNT	Single-walled carbon nano tubes
BCN	Boron carbonitrides
ACF	activated carbon fibers
CNF	carbon nanofibers
CGNR	Curly graphene nanoribbon
CF	Carbon fiber
NPCNF	Nitrogen, phosphorous codoped carbon nanofiber
g-C ₃ N ₄	Graphitic carbon nitride
EP	Electrochemical polymerization
IP	Interfacial polymerization
EDP	electrodeposition
GD	Galvanostatic deposition
ECD	Electrochemical deposition
COP	Chemical oxidative polymerization

Symbol	Nomenclature
C _{SP}	Specific Capacitance [Farad (F)]
Q	Electric charge (Coulomb)

V	Potential [Volt (V)]
ϵ_0	Permittivity of free space (8.854×10^{-12} F/m)
A	Area of plate (m^2)
D	Distance between plates (m)
ϵ	Permittivity of the dielectric material
E	Energy stored [Watt.hour (Wh)]
P_{max}	Maximum power [Watt (W)]
C_{sp}	Specific capacitance (F/g)
D	Average crystallite size (nm)
K	Scherrer's constant
λ	Wavelength of X-ray (Å)
β_L	Full width at half maximum (radians)
Θ	Bragg angle
I	Current (A)
M	Mass (g)
t_c	Charging time (s)
t_d	Discharging time (s)
ΔV	Potential difference (V)
E_{sp}	Specific energy (Wh/kg)
P_{sp}	Specific power (W/kg)
Rct	Charge transfer resistance (Ω)
f_k	Knee frequency (Hz)
τ_r	Relaxation time (s)