

## List of Abbreviations

<i>Abbreviation</i>	<i>Full form</i>
IUPAC	International Union of Pure and Applied Chemistry
ISFET	Ion selective field effect transistor
IDT	Interdigitated transducer
SAW	Surface acoustic wave
IR	Infrared
NDIR	Non-dispersive infrared
SPR	Surface plasmon resonance
MOS	Metal/oxide/semiconductor
MOM	Metal/oxide/metal
MOx	Metal Oxide
LOD	Limit of detection
FET	Field effect transistor
D	Dimensional
I-V	Current-Voltage measurement
ZnO	Zinc oxide
TiO <sub>2</sub>	Titanium dioxide
V <sub>2</sub> O <sub>5</sub>	Vanadium pentoxide
rGO	Reduced graphene oxide
CNF	Carbon nanofiber
FSP	Flame spray pyrolysis
NWs	Nanowires
RH	Relative humidity
NRs	Nanorods
CNT	Carbon nanotube
FESEM	Field emission scanning electron microscopy
XRD	X-ray diffraction
UV	Ultraviolet
AFM	Atomic force microscopy
XPS	X-ray photoelectron spectroscopy
EDX	Energy dispersive X-ray spectroscopy
LSPR	Localized surface plasmon resonance
PPM	Part per million
PVD	Physical vapor deposition
RF	Radio frequency
CVD	Chemical vapor deposition
MFC	Mass flow controller
IDE	Interdigitated electrode
CRT	Cathode ray tube
FWHM	Full width half maximum
VBM	Valance band maxima
FTIR	Fourier transformed infrared spectroscopy
KPFM	Kelvin probe force microscopy
CPD	Contact potential difference
AC	Alternative current
DC	Direct current
CL	Cathodoluminescence
NBE	Near band emission

$V_o$	Oxygen vacancies
$J$	Joule
GO	Graphene oxide
RMS	Root mean square
PAN	Polyacrylonitrile
PMMA	Poly(methylmethacrylate)
DMF	Dimethylformamide
DI	Deionized