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# LIST OF ABBREVIATIONS

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Abbreviation	Details
APD	Avalanche Photodiode
AFM	Atomic Force microscopy
ALD	Atomic Layer Deposition
CQD	Colloidal Quantum Dot
CVD	Chemical Vapor Deposition
DI	De-ionized
EQE	External Quantum Efficiency
2 D	Two-dimensional
FETs	Field-Effect Transistors
FWHM	Full-width-at-half-maximum
ITO	Indium doped Tin Oxide
LPE	Liquid Phase Exfoliation
NIR	Near Infrared
NRs	Nanorods
NDIR	Non-Dispersive Infrared Spectroscopy
MoS <sub>2</sub>	Molybdenum disulphite
MoSe <sub>2</sub>	Molybdenum diselenide
MSM	Metal-Semiconductor-Metal
MOCVD	Metal Organic Chemical Vapor Deposition
MBE	Molecular Beam Epitaxy
OLED	Organic Light Emitting Diode
OCT	Optical Coherence Tomography
SAED	Selected Area Electron Diffraction
SMU	Source and Measuring Unit
TMDs	Transition Metal Dichalcogenides
TEM	Transmission electron microscopy
TFT	Thin Film Transistor
WS <sub>2</sub>	Tungstun disulphide
WSe <sub>2</sub>	Tunstun diselenide
WDM	Wavelength Division Multiplexing
UV-Vis	Ultraviolet-Visible
VLC	Visible Light Communication
VD	Vacuum Thermal Deposition
XRD	X-ray Diffraction
XPS	X-ray Photoelectron Spectroscopy
ZnO	Zinc Oxide

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# LIST OF SYMBOLS

Symbol	Abbreviation
$A_{eff}$	Effective area of the device
Al	Aluminium
Ag	Silver
$E_g$	Energy Bandgap
$E_{ph}$	Photon Energy
$E_C$	Bottom of the Conduction Band
$E_V$	Bottom of the Valence Band
$\alpha$	Absorption Coefficient
$\beta$	Band tailing parameter
$h$	Plancks constant
$\nu$	Frequency
$c$	Velocity of light
$e$	Electron charge
$f_{3-dB}$	3-db bandwidth
$I_{dark}$	Current Under Dark Condition
$I_{light}$	Current Under Illumination Condition
$I_{ph}$	Photocurrent
$J_d$	Dark current density
$E_F$	Fermi Energy Level
$P_{opt}$	Incident Optical Power
$t_r$	Rise time
$t_f$	Fall time
R	Responsivity
$D^*$	Specific Detectivity
$\lambda$	Wavelength
$\phi_M$	Metal work function
$\phi_S$	Semiconductor work function