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Date:

(Rishibrind Kumar Upadhyay)

*Dedicated
To
My Family
And
My Supervisor*

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LIST OF ABBREVIATIONS

Abbreviation	Details
DMSO	Dimethyl sulfoxide
O-D	Zero dimensional
1-D	One dimensional
2-D	Two dimensional
3-D	Three dimensional
ITO	Indium doped tin oxide
PEDOT: PSS	Poly (3, 4-ethylene dioxythiophene): polystyrene sulfonate
DMF	Dimethylformamide
EQE	External quantum efficiency
NEP	Noise equivalent power
SNR	Signal to noise ratio
LDR	Linear dynamic range
NPs	Nanoparticles
Al	Aluminum
Ag	Silver
Au	Gold
DI	Deionized
ZnO	Zinc oxide
CH ₃ NH ₃ PbI ₃	Methylammonium lead iodide
MoO ₃	Molybdenum trioxide
BifeO ₃	Bismuth ferrite
EHPs	Electron-hole pairs
ETL	Electron transport layer
HTL	Hole transport layer

FTO	Fluorine doped tin oxide
XRD	X-Ray diffraction
SEM	Scanning electron microscopy
UV-Vis	Ultraviolet-visible spectroscopy
PL	Photoluminescence spectroscopy
VB	Valence band
CB	Conduction band
SPA	Semiconductor parameter analyser
SMU	Source and measuring unit
I-V	Current-voltage
C-V	Capacitance-voltage

LIST OF SYMBOLS

Symbol	Details
λ	Wavelength
θ	Diffraction angle
T	Transmittance
A	Absorbance
τ_r	Rise time
τ_F	Fall time
R_λ	Responsivity
J	Photocurrent density
I_{light}	Current under light illumination
I_{dark}	Current under dark condition
A	Effective exposed irradiation area
P_d	Optical power
D	Detectivity
RA	Resistance–area product
K	Boltzmann constant
T	Temperature
q	Electronic charge
ϵ	Effective dielectric constant
N_d	Donor concentration
V_{bi}	Built-in potential voltage
W	Width of the depletion region
V	Applied Voltage
α	Absorption coefficient
$P_{\text{opt}}(\lambda)$	Optical power density