

List of Abbreviations

<i>Abbreviation</i>	<i>Full form</i>
AFM	Atomic Force Microscopy
ALD	Atomic Layer Deposition
Ar	Argon
ATK	Atomistik Toolkit
Au	Gold
BDT	1,4-benzenedithiol
BM-NDR	Bidirectional Multiple - Negative Differential Resistance
BPDN-DT	Bipyridyl-dinitro oligophenylene-ethynylene dithiol
BP-DT	Bipyridyl oligophenylene-ethynylene dithiol
C	Carbon
C-AFM	Conductive Atomic Force Microscopy
CDT-BTZ	Cyclopenta-dithiophene benzo-thiadiazole copolymer
Cl	Chlorine
CMOS	Complementary Metal Oxide Semiconductor
CNT	Carbon Nano Tubes
DDOS	Device Density of States
DDQ	2,3-Dichloro-5,6-dicyano-1,4-benzoquinone
DFT	Density Function Theory
DRQ	Benzoquinone
GGA	Generalized Gradient Approximation
GUI	Graphical User Interface
HEG	Homogeneous Electron Gas
HLG	HOMO-LUMO Gap
HOMO	Highest Occupied Molecular Orbital
HR-AFM	High-Resolution Atomic Force Microscopy
HV	High Voltage
IGP	Ion Getter Pump
Ir	Iridium
I-V	Current-Voltage
I-Z	Current-Distance
IRDS	International roadmap for devices and systems
LB	Langmuir Blodgett
LCAO	Linear combination of atomic orbitals
LDA	Local density approximation
LDDOS	Local Device Density of States
LDOS	Local density of states
LEDs	Light emitting diodes
LGAA	Lateral gate all around
LLC	Load Lock Chamber
LSB	Least Significant Bit
LT	Low temperature
LUMO	Least Unoccupied Molecular Orbital
MBE	Molecular Beam Epitaxy
MCBJ	Mechanically controlled break junctions
MEH-PVP	Methoxy ethyl hexoxy-phenylenevinylene
MES	Molecular Energy Spectrum

MLG	Multi-Layer Graphene
MM	More Moore
MO	Molecular Orbital
MOSFET	Metal oxide semiconductor field-effect transistor
MPSH	Molecular Projected Self-Consistent Hamiltonian
MSB	Most Significant Bit
MtM	More-than-Moore
N	Nitrogen
NDR	Negative differential resistance
NEGF	Non-equilibrium Green's function
O	Oxygen
ODT	1,8-octanedithiol
OTFT	Organic thin-film transistor
PBE	Perdew–Burke–Ernzerhof
PBN	Pyrolytic Boron Nitride
PC	Preparation Chamber
PDOS	Projected Density of States
PEDOT:PSS	Poly ethylene dioxythiophene: polystyrene sulphonic acid
PI	Polyimide
Pt	Platinum
PVR	Peak to Valley Current Ratio
PW91	Perdew–Wang 91
PZ	Perdew Zunger
RF	Radio Frequency
RTD	Resonance Tunneling Diodes
SAM	Self-Assembled Monolayers
SMD	Single Molecule Devices
SMOE	Single Molecule Organic Electronics
STM	Scanning Tunneling Microscope
TCNQ	Tetra-cyanoquinodimethane
TEM	Transmission Electron Microscopy
TrFE	Trifluoroethylene
TSP	Titanium Sublimation Pump
TTF	Tetra- Thiofulvalene
UHV	Ultra-High Vacuum
VASP	Vienna Ab-initio Simulation Package
VDF	Vinylidene Fluoride
VGAA	Vertical Gate All Around
VLSI	Very Large-Scale Integration
VNL	Virtual NanoLab
W	Tungsten
WKB	Wentzel-Kramers-Brillouin

