

Section 11

ABBREVIATIONS

Massachusetts Institute of Technology

ACCAdvanced Concepts Committee (MIT LL)
CAESCenter for Advanced Engineering Study
ChE.....Department of Chemical Engineering
ChemEDepartment of Chemical Engineering
CICSCenter for Integrated Circuits and Systems
CIPS.....Center for Integrated Photonic Systems
CMICambridge-MIT Institute
CMSE.....Center for Materials Science and Engineering
CSRCenter for Space Research
DMA.....Dupont-MIT Alliance
DMSE.....Department of Materials Science and Engineering
EECSDepartment of Electrical Engineering and Computer Science
HSTHealth Sciences and Technology, Harvard-MIT
ICL.....Integrated Circuits Laboratory
ISN.....Institute for Soldier Nanotechnologies
ITRC.....Intelligent Transportation Research Center
LEES.....Laboratory for Electromagnetic and Electronic Systems
LFM.....Leaders for Manufacturing
MIGMicrosystems Industrial Group
MITMassachusetts Institute of Technology
MNSL.....Micro & Nano Systems Laboratory
MPC.....Materials Processing Center
MTLMicrosystems Technology Laboratories
NSLNanoStructures Laboratory
RLE.....Research Laboratory of Electronics
SMA.....Singapore-MIT Alliance
SMLSpace Microstructures Laboratory
SOESchool of Engineering
TRL.....Technology Research Laboratory
UROPUndergraduate Research Opportunities Program

Private Industry

AMDAdvanced Micro Devices
CSDLCharles Stark Draper Laboratory
HPHewlett-Packard
IBMInternational Business Machines Corporation
KIMM.....Korea Institute of Machinery and Materials
MARCO.....Microelectronics Advanced Research Corporation
 C2S2.....Center for Circuits and Systems Solutions
 GSRCGigascale Systems Research Center
 IFCInterconnect Focus Center
 MSDCenter for Materials, Structures and Devices
MGH.....Massachusetts General Hospital
NTT.....Nippon Telephone and Telegraph
SIA.....Semiconductor Industry Association
SRCSemiconductor Research Corporation
TI.....Texas Instruments

Government

AFOSR.....U.S. Air Force Office of Scientific Research
AFRLAir Force Research Laboratories
ARDAAdvanced Research and Development Activity
ARL.....Army Research Laboratories
ARO MURI.....Army Research Office M
CSEConsortium on Superconducting Electronic
DARPA.....Defense Advanced Research Projects Agency
DODDepartment of Defense
DOEDepartment of Energy
DURINTDefense University Initiative on Nanotechnology
JPLJet Propulsion Laboratories
JSEPJoint Services Electronics Program
LANL.....Los Alamos National Laboratory
MDA.....Missile Defense Agency
MRSEC.....Materials Research Science and Engineering Center
MURIMulti University Research Initiative
NASANational Aeronautics and Space Administration
NCIPT.....National Center for Integrated Photonics Technology
NDSEG.....National Defense Science and Engineering Graduate
NIHNational Institutes of Health
 NCI.....National Cancer Institute
 NCRRNational Center for Research Resources
 NIDDKNational Institute of Diabetes and Digestive and
 Kidney Diseases
 NIBIBNational Institute of Biomedical Imaging and
 BioEngineering
 NHLBI.....National Heart, Lung, and Blood Institute
NIST.....National Institute of Standards and Technology
NOAANational Atmospheric and Oceanographic
Administration
NREL.....National Renewable Energy Laboratory
NRL.....Naval Research Laboratory
NSANational Security Administration
NSF.....National Science Foundation
 CMSECenter for Materials Science and Engineering
 MRSECMaterials Research Science and Engineering Centers
 NIRTNanotechnology and Interdisciplinary Research
 Initiative
 SGER.....Small Grant for Exploratory Research
ONROffice of Naval Research

Other

CFI	.....	CAD Framework Initiative
CIE	.....	Commission International de l'Eclairage
CIM	.....	Computer Integrated Manufacturing
IEEE	.....	Institute of Electrical and Electronics Engineers
IEDM	.....	International Electronic Devices Meeting
IME	.....	Institute of Microelectronics, Singapore
IMEC	.....	Interuniversity MicroElectronics Center
MCNC	.....	Microelectronics Center of North Carolina
MRS	.....	Materials Research Society
NATO	.....	North Atlantic Treaty Organization
NTCIP	.....	National Transportation Communications for Intelligent Transportation
WiMAX	.....	Worldwide Interoperability for Microwave Access, Inc.

Technical

AAO	.....	Anodic aluminum oxide
ACEO	.....	AC electro-osmosis
ACPR	.....	Adjacent channel power ratio
ADC	.....	Analog-to-digital converter
AFM	.....	Atomic force microscope
ALD	.....	Atomic layer deposition
AMOL	.....	Absorbance-two-wavelength scheme
APCVD	.....	Atmospheric pressure chemical vapor deposition
ASIC	.....	Application-specific integrated circuit
BEOL	.....	Back-end-of-line
BER	.....	Bit-error-rate
BiCMOS	.....	Bipolar complementary metal oxide semiconductor
BPSK	.....	Binary phase shift keying
BPV	.....	Back-propagation of variance
BTBT	.....	Band-to-band tunneling
CAD	.....	Computer aided design
CATV	.....	Category V
CBSC	.....	Comparator-based switched-capacitor circuit
CCD	.....	Charge couple device
CCR	.....	Critically coupled resonator
CDR	.....	Clock and data recovery
CFB	.....	Cartesian feedback
CFT	.....	Clock feed-through
CML	.....	Current mode latch
CMOS	.....	Complementary metal oxide semiconductor
CMP	.....	Chemical mechanical planarization
CNT	.....	Carbon nanotube
COC	.....	Cyclic olefin copolymer
COIL	.....	Chemical oxygen iodine laser
CV	.....	Capacitance voltage
CVD	.....	Chemical vapor deposition
DAC	.....	Digital-to-analog converter
DBR	.....	Dielectric Bragg reflector
DCA	.....	Dielectric continuum approximation
DCP	.....	Dielectrophoretic cell patterning
D-CAP	.....	Digitally-configurable analog processor
DEM	.....	Dynamic element matching
DEP	.....	Dielectrophoresis
DHI	.....	Digital holographic imaging
DIBL	.....	Drain-induced barrier lowering
DPD	.....	Digital predistortion
DRIE	.....	Deep reactive-ion etching
DSP	.....	Digital signal processing
DUT	.....	Devices-under-test
ECG	.....	Electrocardiogram
EEG	.....	Electroencephalogram
EEPROM	.....	Electrically erasable programmable read only memory
EL	.....	Electroluminescence
EM	.....	Electromagnetic
ENOB	.....	Effective number of bits
EPD	.....	Endpoint detection
FACS	.....	Flow-assisted Cell Sorting
FDTD	.....	Finite difference time domain
FEOL	.....	Front-end-of-line
FET	.....	Field-effect transistor
FFT	.....	Fast Fourier transform
FIR	.....	Finite impulse response
FOM	.....	Figure of merit
FOV	.....	Field of view
FPGA	.....	Field programmable gate array
GeOI	.....	Germanium-on-insulator
GMR	.....	Giant magnetoresistance
GOI	.....	Germanium-on-insulator
GP	.....	Geometric programming
HD	.....	Harmonic distortion
HDQ	.....	Harmonic Differential Quadrature
HEMT	.....	High-electron mobility
HIC	.....	High-index-contrast
HM	.....	Herringbone mixer
HOI	.....	Heterostructure on insulator
HSQ	.....	Hydrogen silsesquioxane
ICEO	.....	Induced charge electro-osmosis
IDE	.....	Interdigitated electrodes
IMD	.....	Inter-modulation distortion
INL	.....	Integral nonlinearity
ISI	.....	Inter symbol interference
ISM	.....	Industrial, scientific, medical
ITO	.....	Indium-tin-oxide
IV	.....	Current voltage
KOH	.....	Potassium hydroxide
LED	.....	Light-emitting device
LINC	.....	Laboratory instrument computer
LNA	.....	Low noise amplifier
LPCVD	.....	Low pressure chemical vapor deposition
LSB	.....	Lower sideband
MAA	.....	methacrylic acid
MDLL	.....	Multiplying delay-locked loops
MEM	.....	Micro-electro-mechanical
M-HEMT	.....	Metamorphic high-electron-mobility transistor
MEMS	.....	Micro-electro-mechanical systems
MGA	.....	Micro gas analyzer
MMA	.....	Methylmethacrylate
MMSE	.....	Minimum mean square error
MMW	.....	Millimeter-wave
MOCVD	.....	Metallorganic chemical vapor deposition
MOR	.....	Model-order-reduction
MOS	.....	Metal-oxide-semiconductor
MOSFET	.....	Metal-oxide-semiconductor field-effect transistor

MPIE	Mixed-potential-integral-equation	SMU.....	Sense-Measurement Unit
MRAM	Magnetic-random-access memory	SNR	Signal-to-noise ratio
NEM.....	Nano-electro-mechanical	SOA	Semiconductor optical amplifier
NIL.....	Nanoimprint lithography	SoC	System-on-chip
NMOS	Negative-channel metal-oxide semiconductor	SOG	Singlet oxygen generator
OEO	Optical-electronic-optical	SOL.....	Silicon on insulator
OFDM.....	Orthogonal frequency division multiplexing	SOLES	Silicon on lattice-engineered substrate
OFET.....	Organic field-effect transistor	SPLEBL	Spatial-phase-locked electron-beam lithography
OFF	Off	SPM.....	Scanning probe micrograph
OHC	Outer hair cells	SRAM.....	Static random access memory
OLED	Organic light-emitting diode	SSDSOI	Strained-silicon directly on insulator
OPL.....	Optical projection lithography	STI.....	Shallow trench isolation
PA.....	Power amplifier	TAT	Trap-assisted tunneling
PAE	Power-added efficiency	TDC	Time-to-digital
PCR	Polymerase chain reaction	TDD	Threading dislocation density
PDAC	poly diallyldimethylammonium chloride	TERS.....	Tip enhanced Raman spectroscopy
PDMS.....	Polydimethylsiloxane	TIPS	Thermal inkjet pico-fluidic drop dispensing system
PECVD	Plasma enhanced chemical vapor deposition	TPV.....	Thermophotovoltaic
PEM	Proton exchange membrane; polymer electrolyte membrane	TTTDD.....	Time-temperature threading dislocation density
PFM	Pulse frequency modulation	UHVCD	Ultra high vacuum chemical vapor deposition
PHEMT	Pseudomorphic high-electron mobility transistor	ULSI.....	Ultra Large Scale Integration
PHY.....	Physical layer	UWB.....	Ultra-wideband
PIV	Particle image velocimetry	VCO	Voltage Controlled Oscillators
PL	Photoluminescence	VCSEL.....	Vertical-cavity Surface-emitting Laser
PLL	Phase-locked loops	VDG	Voltage from Drain to Gate
PMGI	Polymethylglutarimide	VLS	Vapor-liquid-solid
PMMA.....	Polymethylmethacrylate	VLSI	Very Large Scale Integration
PMOR.....	Parameterized model reduction	VPR.....	Versatile Place and Route
PMOS.....	Positive channel metal oxide semiconductor	VSCSEL.....	Vertical cavity surface-emitting laser
PPM	Pulse-position modulated	WiGLAN.....	Wireless gigabit local area network
PRF	Pulse-repetition frequency	WLAN.....	Wireless local area network
PROM.....	Parameterized reduced-order models	WSP	Water soluble particles
PSV.....	Pseudo-spin-valve	YSZ.....	Yttria-stabilized zirconia oxide
PTM	Predictive technology models	ZPAL	Zone-plate-array lithography
QCL	Quantum-cascade laser		
QD	Quantum dot		
RC	Resonant cavity		
RFID	Radio frequency identification		
RIE	Reactive-ion etching		
ROI.....	Regions of interest		
RSM	Response surface model		
RTNIL	Room-temperature nanoimprint lithography		
RVHI.....	Rainbow volume holographic imaging		
SAR.....	Successive approximation register		
SAW	Surface acoustic wave		
SBR	Saturable Bragg reflector		
SCE	Short-channel Effects		
SEBL.....	Scanning-electron-beam lithography		
SEM	Scanning-electron microscope		
SFDR.....	Spur-free dynamic range		
SGM.....	slanted groove mixer		
SHM.....	Staggered herringbone mixer		
SIMS	Secondary ion-mass spectrometry		
SiNW	Silicon nano-wire		
SiNWT	Silicon nanowire transistors		
SMR	Suspended microchannel resonator		