9. ACRONYMS

Acronym	Definition
A/SP	Auto/Steel Partnership
ACC	American Chemistry Council
ACE	Applied Cost Engineering team
ACES	Advanced Collaborative Emissions Study
AEC	Advanced Engine Combustion
AED	Advanced Electric Drive
AES	Auger Electron Spectroscopy
AFV	Alternative Fuel Vehicle
AHSS	Advanced High Strength Steel
ALD	Atomic Layer Depostition
ANL	Argonne National Laboratory
APBF	Advanced Petroleum-Based Fuels
APEEM	Advanced Power Electronics and Electric Machines Program
APRF	Advanced Powertrain Research Facility
APS	Advanced Photon Source
ARC	Accelerated Rate Calorimetry
ARL	Army Research Laboratory
ARRA	American Recovery and Reinvestment Act
ASIC	Application-Specific Integrated Circuit
ASTM	American Society for Testing and Materials
AVFL	Advanced vehicle/fuel/lubricant committee
AVTA	Advanced Vehicle Testing Activity
BATT	Batteries for Advanced Transportation Technologies
BCD	Bipolar-CMOS-DMOS
BES	DOE Basic Energy Sciences
BEV	Battery Electric Vehicle
BLRT	Bond Line Read Through
BMEP	Brake mean effective pressure
BMS	Battery management system
BSFC	Brake specific fuel consumption
BTE	Brake thermal efficiency
CAE	Computer Aided Engineering
CAFÉ	Corporate Average Fuel Economy
CANMET	Canada Center for Mineral and Energy Technology
CARB	California Air Resources Board
CF	Carbon Fiber
CFD	Computational fluid dynamics
CH4	Methane
CI	Compression Ignition

Acronym	Definition
CLEERS	Cross-Cut Lean Exhaust Emission Reduction Simulation
CLOSE	Collaborative Lubricating Oil Study on Emissions
CMOS	Complimentary Metal-Oxide-Semiconductor
CNF	Carbon Nano-Fibers
CNG	Compressed Natural Gas
CNT	Carbon Nanotubes
CO	Carbon Monoxide
CO2	Carbon Dioxide
COP	Coefficient of Performance
CPI	Compact Power Inc.
CR	Compression ratio
CRADA	Cooperative Research and Development Agreement
CRC	Coordinating Research Council
CSI	Current Source Inverter
CSU	Colorado State University
CTE	Coefficient of thermal expansion
CVD	Chemical Vapor Deposition
DBC	Direct bonded copper
DEM	Digital Elevation Model
DeSOx	Flue Gas Desulfurization
DFMEA	Design Failure Mode Effects Analysis
DFT	Density Functional Theory
DI	Direct Injection
DISI	Direct injection spark ignited
DOC	Diesel oxidation catalyst
DOD	Department of Defense
DoD	Depth of Discharge
DOE	Department of Energy
DOT	Department of Transportation
DPF	Diesel particulate filter
DRIFTS	Diffuse Reflectance Infrared Fourier Transform Spectroscopy
DSC	Differential Scanning Calorimetry Analysis
DST	Dynamic Stress Test
DT	Diagnostics Testing
E85	85 percent ethanol blend with gasoline
EC	Ethylene Carbonate
ECI	Enterprise Content Integration
EDLC	Electric Double-Layer Capacitor
EERE	Energy Efficiency and Renewable Energy
EETT	Enhancing Education Through Technology
EGR	Exhaust Gas Recirculation

Acronym	Definition
EIL	Engineers in the Loop
EMC	Ethyl methyl carbonate
EMF	Electromagnetic Forming
EMI	Electromagnetic Interference
EMS	Emergency Medical Services
EPA	Environmental Protection Agency
EPRI	Electric Power Research Institute
ERC	Engine Research Center at University of Wisconsin
ERDA	Elastic Recoil Detection Analysis
ETC	Environmental Technology Council
EUCAR	European Council for Automotive R&D
EV	Electric Vehicle
FACE	Fuels for Advanced Combustion Engines
FCEV	Fuel cell electric vehicles
FCV	Fuel cell electric vehicles
FE	Fuel Efficiency
FEA	Finite Element Analysis
FEERC	Fuels, Engines, and Emissions Research Center
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIB	Focused Ion Beam
FMCSA	Federal Motor Carrier Safety Administration
FMEA	Failure Mode and Effects Analysis
FMEAM	Force-Matching-Embedded-Atom-Method
FMEP	Friction Mean Effective Pressure
FPE	Free-Piston Engine
FSP	Friction Stir Processing
FSW	Friction Stir Welding
FUDS	Federal Urban Drive Schedule
FY	Fiscal Year
GATE	Graduate Automotive Technology Education
GDE	Gas diffuse electrode
GDI	Gasoline Direct Injection
GHG	Greenhouse gases
GIXS	Grazing-Incidence X-ray Scattering
GM	General Motors Corporation
GPS	Global Positioning System
GPU	Graphics Processing Unit
GTI	Gas Technology Institute
H2	Hydrogen
HAZ	Heat Affected Zone

Acronym	Definition
HC	Hydrocarbon
HCCI	Homogeneous Charge Compression Ignition
HD	Heavy-duty
HDD	Heavy-duty diesel
HECC	High Efficiency Clean Combustion
HEV	Hybrid Electric Vehicle
HICEV	Hydrogen internal combustion electric vehicle
HIL	Hardware in the Loop
HNEI	Hawaii Natural Energy Institute
HPLB	High-Pressure, Lean Burn
HSEEP	Homeland Security Exercise and Evaluation Program
HSS	High Strength Steel
HTGB	High Temperature Gate Bias
HTIPE	High temperature integrated power electronics
HTML	High Temperature Materials Laboratory
HTOL	High Temperature Operating Life
HTRB	High Temperature Reverse Bias
HVAC	Heating Ventilating and Air Conditioning
IC	Internal Combustion
ICE	Internal Combustion Engine
ICME	Integrated Computational Material Engineering
IGBT	Insulated-gate bipolar transistor
IMEP	Indicated Mean Effective Pressure
IMMD	Integrated Modular Motor Drive
INL	Idaho National Laboratory
IP	Intellectual Property
IQT	Ignition Quality Tester
ISFC	Indicated Specific Fuel Consumption
ISO	International Organization for Standardization
JARI	Japan Automobile Research Institute
JFET	Junction Gate Field-Effective Transistor
JPL	Jet Propulsion Laboratory
KIVA	Internal combustion engine simulation code (Los Alamos)
LANL	Los Alamos National Laboratory
LBNL	Lawrence Berkeley National Laboratory
LCA	Lifecycle cost analysis
LD	Light-duty
LDECC	Light Duty Efficient Clean Combustion
LDV	Light Duty Vehicle
LES	Large Eddy Simulation
LFP	Lithium iron phosphate

Acronym	Definition
LIC	Lithium Capacitors
LJP	Laser Jet Peening
LLNL	Lawrence Livermore National Laboratory
LMP	Lithium Metal Polymer
LNMO	Lithium Nickel Manganese Oxide
LNT	Lean NOx Trap
LSDC	Low Speed Duty Cycle
LSM	Lambda (oxygen) Sensor
LSMO	Lanthanum Strontium Manganite
LSP	Laser shock peening
LTC	Low Temperature Combustion
LTO	Low Temperature Oxide (form of silicon dioxide)
MCMB	Mesocarbon Microbeads
MDIUF	Multi-Day Individual Utility Factor
MEAM	Modified Embedded Atom Method
MEDC	Michigan Economic Development Corporation
MIG	Metal Inert Gas (welding)
MIT	Massachusetts Institute of Technology
MMV	Multi-Material Vehicle
MOSFET	Metal-Oxide-Semiconductor Field-Effective Transistor
MOU	Memorandum of Understanding
MSU	Michigan State University
MTBE	Methyl Tertiary Butyl Ether
MTDC	Medium-Truck Duty Cycle
MTU	Michigan Technology University
NAFTC	National Alternative Fuels Training Consortum
NASA	National Aeronautics and Space Administration
NCA	Battery cathode material (nickel cobalt aluminum oxide)
NDA	Non-Destructive Analysis
NDE	Non-Destructive Evaluation
NEDC	New European Driving Cycle
NEV	Neighborhood Electric Vehicle
NFPA	National Fire Protection Association
NG	Natural Gas
NGP	Nano Graphine Platelets
NIMS	National Incident Management System
NIST	National Institute of Standards and Technology
NMC	Lithiated nickel-manganese-cobalt oxide
NMR	Nuclear Magnetic Resonance
Nox	Nitrogen Oxide
NPV	Net Present Value

Acronym	Definition
NREL	National Renewable Energy Laboratory
NSF	National Science Foundation
NSR	NOx Storage/Reduction
NVH	Noise/vibration/harshness
NVO	Negative valve overlap
OBD	Onboard Diagnostics
OEM	Original Equipment Manufacturer
OH	Hydroxide
OMB	Office of Management and Budget
ORC	Organic Rankine cycle
ORISE	Oak Ridge Institute for Science and Education
ORNL	Oak Ridge National Laboratory
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyls
PCCI	Premixed Charge Compression Ignition
PED	Power Electric Device
PEEM	Power Electronics and Electric Machines
PEP	Program Execution Plan
PFR	Plug Flow Reactor
PGM	Precious-group metals
PHEV	Plug-In Hybrid Electric Vehicle
PI	Principal Investigator
PM	Particulate Matter
PMEP	Pumping Mean Effective Pressure
PNNL	Pacific Northwest National Laboratory
PPF	Pulse Pressure Forming
PSAT	Powertrain Systems Analysis Toolkit
PSD	Particle Size Distribution
PVDF	Polyvinylidene Fluoride
PZT	Lead zirconate titanate film
R&D	Research and Development
RAPTR	Regenerative Air Preheating and Thermochemical Recuperation
RPM	Revolutions Per Minute
SAE	Society of Automotive Engineers
SAED	Selected Area Electron Diffraction
SBIR	Small Business Innovation Research
SCORE	Sandia/Caterpillar Optical Research Engine
SCR	Selective Catalytic Reduction
SEI	Solid electrolyte interface
SEM	Scanning Electron Microscope
SI	Spark Ignition

Acronym	Definition
SLMP	Stabilized Lithium Metal Powder
SMC	Sheet Molding Compound
SmCo	Samarium-Cobalt
SME	Soy Methyl Ester
SNL	Sandia National Laboratory
SOA	State of the art
SOC	State of Charge
SOI	Silicon on insulator
SOI	Start of Injection
SRS	Safety Response Separator
SUNY	State University of New York
SUV	Sport Utility Vehicle
SWNT	Single wall nanotube
TARDEC	Tank Automotive Research, Development, and Engineering Center
TBC	Thermal Barrier Coating
TBD	To Be Decided
TCR	Thermochemical Recuperation
TDC	Top Dead Center
TE	Thermoelectrics
TEG	Thermoelectric Generator
TEM	Transmission Electron Microscope
TNO	Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek
TS	Thermal Stratification
UC	University of California
UHC	Unburned Hydrocarbons
UL	Underwriters Laboratories
ULSD	Ultra-low sulfur diesel
UMTRI	University of Michigan Transportation Research Institute
UNLV	University of Nevada Las Vegas
USABC	US Advanced Battery Consortium
USCAR	United States Council for Automotive Research
UT	University of Tennessee
UV	Ultra Violet
UW	University of Wisconsin
UWM	University of Wisconsin at Madison
VGC	Vehicle-Grid Connection
VR	Virtual Reality
VSI	Voltage source inverter
VSS	Vehicle Systems and Simulation activity
VT	Vehicle Technologies
VTP	Vehicle Technologies Program

Acronym	Definition
VVA	Variable Valve Actuation
VVLT	Variable Valve Lift and Timing
W	Watt
WHR	Waste Heat Recovery
WSP	Wet Shot Peening
XAS	X-ray Absorbtion Spectroscopy
XPS	X-ray Photoelectron Spectroscopy
XRD	X-ray Diffraction (Crystallography)
YSZ	Yttria-stabilized zirconia
ZT	Thermoelectrics figure of merit (measure of efficiency)