

# Charles R. Koch

## List of Publications by Year in descending order

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88  
papers

1,394  
citations

430442

18  
h-index

476904

29  
g-index

88  
all docs

88  
docs citations

88  
times ranked

906  
citing authors

#	ARTICLE	IF	CITATIONS
1	Support vector machine based emissions modeling using particle swarm optimization for homogeneous charge compression ignition engine. International Journal of Engine Research, 2023, 24, 536-551.	1.4	13
2	Discrete output regulator design for linear distributed parameter systems. International Journal of Control, 2022, 95, 603-619.	1.2	3
3	Modeling, diagnostics, optimization, and control of internal combustion engines via modern machine learning techniques: A review and future directions. Progress in Energy and Combustion Science, 2022, 88, 100967.	15.8	99
4	Cold Climate Impact on Air-Pollution-Related Health Outcomes: A Scoping Review. International Journal of Environmental Research and Public Health, 2022, 19, 1473.	1.2	7
5	Development and testing of a universal aerosol conditioner. Aerosol Science and Technology, 2022, 56, 382-393.	1.5	1
6	Thermocapillary patterning of non-Newtonian thin films. Physics of Fluids, 2022, 34, .	1.6	2
7	A correlation-based model order reduction approach for a diesel engine NO <sub>x</sub> and brake mean effective pressure dynamic model using machine learning. International Journal of Engine Research, 2021, 22, 2654-2672.	1.4	28
8	Two-layer modeling of thermally induced Bénard convection in thin liquid films: Volume of fluid approach vs thin-film model. AIP Advances, 2021, 11, 045317.	0.6	1
9	Model Predictive Control of Internal Combustion Engines: A Review and Future Directions. Energies, 2021, 14, 6251.	1.6	36
10	Hybrid Machine Learning Approaches and a Systematic Model Selection Process for Predicting Soot Emissions in Compression Ignition Engines. Energies, 2021, 14, 7865.	1.6	14
11	Development and experimental validation of a real-time capable field programmable gate array-based gas exchange model for negative valve overlap. International Journal of Engine Research, 2020, 21, 421-436.	1.4	24
12	Model Predictive Control of Jacket Tubular Reactors with a Reversible Exothermic Reaction. Industrial & Engineering Chemistry Research, 2020, 59, 18921-18936.	1.8	4
13	Machine Learning-based Diesel Engine-Out NO <sub>x</sub> Reduction Using a plug-in PD-type Iterative Learning Control. , 2020, , .		13
14	Homogeneous charge compression ignition combustion stability improvement using a rapid ignition system. International Journal of Engine Research, 2020, 21, 1846-1856.	1.4	14
15	A grey-box machine learning based model of an electrochemical gas sensor. Sensors and Actuators B: Chemical, 2020, 321, 128414.	4.0	30
16	A numerical study for thermocapillary induced patterning of thin liquid films. Physics of Fluids, 2020, 32, 024106.	1.6	10
17	Support vector machine for a diesel engine performance and NO <sub>x</sub> emission control-oriented model. IFAC-PapersOnLine, 2020, 53, 13976-13981.	0.5	14
18	Robotic Manipulator Control Using PD-type Fuzzy Iterative Learning Control. , 2019, , .		11

#	ARTICLE	IF	CITATIONS
19	Integral Discrete-time Sliding Mode Control of Homogeneous Charge Compression Ignition (HCCI) Engine Load and Combustion Timing. IFAC-PapersOnLine, 2019, 52, 153-158.	0.5	15
20	In-cycle control for stabilization of homogeneous charge compression ignition combustion using direct water injection. Applied Energy, 2019, 240, 1061-1074.	5.1	34
21	Development and experimental validation of a field programmable gate array-based in-cycle direct water injection control strategy for homogeneous charge compression ignition combustion stability. International Journal of Engine Research, 2019, 20, 1101-1113.	1.4	16
22	An electrochemical model of an amperometric NO <sub>x</sub> sensor. Sensors and Actuators B: Chemical, 2019, 290, 302-311.	4.0	22
23	A Variable-Potential Amperometric Hydrocarbon Sensor. IEEE Sensors Journal, 2019, 19, 12003-12010.	2.4	6
24	Phenomenological model of a solid electrolyte NO <sub>x</sub> and O <sub>2</sub> sensor using temperature perturbation for on-board diagnostics. Solid State Ionics, 2018, 321, 62-68.	1.3	21
25	Thermally induced interfacial instabilities and pattern formation in confined liquid nanofilms. Physical Review E, 2018, 98, .	0.8	10
26	Ordered high aspect ratio nanopillar formation based on electrical and thermal reflowing of prepatterned thin films. Journal of Colloid and Interface Science, 2018, 530, 312-320.	5.0	8
27	Hydrocyclone equivalent settling area factor at higher concentrations and developing a performance chart. Separation and Purification Technology, 2017, 182, 171-184.	3.9	8
28	Morphology and volatility of particulate matter emitted from a gasoline direct injection engine fuelled on gasoline and ethanol blends. Journal of Aerosol Science, 2017, 105, 166-178.	1.8	26
29	Enhanced Electrically Induced Micropatterning of Confined Thin Liquid Films: Thermocapillary Role and Its Limitations. Industrial & Engineering Chemistry Research, 2017, 56, 10678-10688.	1.8	10
30	Amperometric solid electrolyte NO <sub>x</sub> sensors – The effect of temperature and diffusion mechanisms. Solid State Ionics, 2017, 313, 7-13.	1.3	19
31	An experimental investigation on hydrocyclone underflow pumping. Powder Technology, 2017, 305, 99-108.	2.1	22
32	Dielectric behavior of oil-water emulsions during phase separation probed by electrical impedance spectroscopy. Sensors and Actuators B: Chemical, 2017, 243, 460-464.	4.0	17
33	A System Identification Strategy for Nonlinear Model of Small-Scale Unmanned Helicopters. Journal of the American Helicopter Society, 2016, 61, 1-13.	0.5	6
34	Thermo-Electrohydrodynamic Patterning in Nanofilms. Langmuir, 2016, 32, 5776-5786.	1.6	19
35	Predicting equivalent settling area factor in hydrocyclones; a method for determining tangential velocity profile. Separation and Purification Technology, 2016, 163, 341-351.	3.9	8
36	Iterative Learning on Dual-fuel Control of Homogeneous Charge Compression Ignition * *Financial support for this research provided by Biofuelnet Canada.. IFAC-PapersOnLine, 2016, 49, 347-352.	0.5	7

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37	An HCCI Control Oriented Model that Includes Combustion Efficiency. IFAC-PapersOnLine, 2016, 49, 327-332.	0.5	16
38	Compact micro/nano electrohydrodynamic patterning: using a thin conductive film and a patterned template. Soft Matter, 2016, 12, 1074-1084.	1.2	17
39	Particle Motion in a Macroscale, Multiwavelength Acoustic Field. Journal of Fluids Engineering, Transactions of the ASME, 2015, 137, .	0.8	4
40	Hydrocyclone Performance and Energy Consumption Prediction: A Comparison with Other Centrifugal Separators. Separation Science and Technology, 2015, 50, 788-801.	1.3	13
41	Electrohydrodynamic patterning of ultra-thin ionic liquid films. Soft Matter, 2015, 11, 2193-2202.	1.2	19
42	Active and passive flow control on a precessing jet. Experiments in Fluids, 2015, 56, 1.	1.1	1
43	A fast inverse kinematic solution for the nonlinear actuating mechanisms of a small-scale helicopter. Multibody System Dynamics, 2015, 35, 257-275.	1.7	4
44	Feedforward/Feedback control of HCCI combustion timing. , 2014, , .		3
45	Electrical Perturbations of Ultrathin Bilayers: Role of Ionic Conductive Layer. Langmuir, 2014, 30, 14734-14744.	1.6	13
46	A HIL Testbed for Initial Controller Gain Tuning of a Small Unmanned Helicopter. Journal of Intelligent and Robotic Systems: Theory and Applications, 2014, 73, 289-308.	2.0	7
47	Theoretical and Experimental Study of Hydrocyclone Performance and Equivalent Settling Area. , 2014, , .		4
48	Dynamics of Thin Liquid Bilayers Subjected to an External Electric Field. , 2014, , .		0
49	HCCI combustion timing control with Variable Valve Timing. , 2013, , .		11
50	A HIL testbed for small unmanned helicopter's initial controller gain tuning. , 2013, , .		0
51	A Milli-Fluidic Device for Electrical Impedance Spectroscopy of Complex Liquids. , 2013, , .		0
52	A Control Oriented Model with Variable Valve Timing for HCCI Combustion Timing Control. , 2013, , .		11
53	Closed Loop Electromagnetic Valve Actuation Motion Control on a Single Cylinder Engine. , 2013, , .		12
54	Investigating the motion of particles in an ultrasonic acoustic wave field using PIV/PTV. AIP Conference Proceedings, 2012, , .	0.3	1

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55	Cycle Adaptive Feedforward Approach Controllers for an Electromagnetic Valve Actuator. IEEE Transactions on Control Systems Technology, 2012, 20, 738-746.	3.2	19
56	Controlling cyclic combustion timing variations using a symbol-statistics predictive approach in an HCCI engine. Applied Energy, 2012, 92, 133-146.	5.1	36
57	Numerical study of a butanol/heptane fuelled Homogeneous Charge Compression Ignition (HCCI) engine utilizing negative valve overlap. Applied Energy, 2012, 94, 166-173.	5.1	22
58	Influence of Electrostatic and Chemical Heterogeneity on the Electric-Field-Induced Destabilization of Thin Liquid Films. Langmuir, 2011, 27, 12472-12485.	1.6	31
59	Modeling Ranges of Cyclic Variability for HCCI Ignition Timing Control. , 2011, , .		8
60	Knock Detection and Control in an HCCI Engine Using DWT. , 2011, , .		3
61	Investigation of micro-jet active control of a precessing jet using PIV. Experiments in Fluids, 2011, 51, 1709-1719.	1.1	3
62	Comparison of Crankangle Based Ignition Timing Methods on an HCCI Engine. , 2010, , .		1
63	Knock limit prediction via multi-zone modelling of a primary reference fuel HCCI engine. International Journal of Vehicle Design, 2010, 54, 47.	0.1	11
64	Experimental test of a robust formation controller for marine unmanned surface vessels. Autonomous Robots, 2010, 28, 213-230.	3.2	26
65	HCCI Engine Combustion Phasing Prediction Using a Symbolic-Statistics Approach. Journal of Engineering for Gas Turbines and Power, 2010, 132, .	0.5	18
66	Physics Based Control Oriented Model for HCCI Combustion Timing. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2010, 132, .	0.9	36
67	Dynamic Modeling of HCCI Combustion Timing in Transient Fueling Operation. SAE International Journal of Engines, 2009, 2, 1098-1113.	0.4	13
68	Predicting the Distribution of Combustion Timing Ensemble in an HCCI Engine. , 2009, , .		5
69	Nonlinear Dynamics in Cyclic Variations of Combustion Phasing in an HCCI Engine. , 2009, , .		2
70	Deformation of a droplet in an electric field: Nonlinear transient response in perfect and leaky dielectric media. Journal of Colloid and Interface Science, 2008, 318, 463-476.	5.0	70
71	Characteristic Times for Pressure and Electrostatic Force Driven Thin Film Drainage. Journal of Computational and Theoretical Nanoscience, 2008, 5, 2060-2066.	0.4	1
72	Flatness-Based Tracking of an Electromechanical Variable Valve Timing Actuator With Disturbance Observer Feedforward Compensation. IEEE Transactions on Control Systems Technology, 2008, 16, 652-663.	3.2	70

#	ARTICLE	IF	CITATIONS
73	Cycle adaptive feedforward approach control of an electromagnetic valve actuator. , 2008, , .		9
74	Cyclic Variations of Ignition Timing in an HCCI Engine. , 2007, , .		12
75	Control Oriented Modeling of Combustion Phasing for an HCCI Engine. Proceedings of the American Control Conference, 2007, , .	0.0	16
76	A SKELETAL KINETIC MECHANISM FOR PRF COMBUSTION IN HCCI ENGINES. Combustion Science and Technology, 2007, 179, 1059-1083.	1.2	43
77	Flatness-Based Feedback Control of an Automotive Solenoid Valve. IEEE Transactions on Control Systems Technology, 2007, 15, 394-401.	3.2	57
78	Predicting Start of Combustion Using a Modified Knock Integral Method for an HCCI Engine. , 2006, , .		38
79	Flatness-based tracking of an electromechanical VVT actuator with magnetic flux sensor. , 2006, , .		4
80	Flatness-Based Tracking of an Electromechanical VVT Actuator with Magnetic Flux Sensor. , 2006, , .		5
81	Deformation of a Droplet in an Electrical Field: Transient Response in Dielectric Media. Journal of Computational and Theoretical Nanoscience, 2004, 1, 429-437.	0.4	6
82	A Well-to-Wheel Comparison of Several Powertrain Technologies. , 0, , .		29
83	Predicting HCCI Auto-Ignition Timing by Extending a Modified Knock-Integral Method. , 0, , .		32
84	Actuator Comparison for Closed Loop Control of HCCIC Combustion Timing. , 0, , .		14
85	Model Predictive Control for Combustion Timing and Load Control in HCCI Engines. , 0, , .		17
86	Electrified Pressure-Driven Instability in Thin Liquid Films. , 0, , .		0
87	Evaluation of ASTM D6424 standard for knock analysis using unleaded fuel candidates on a six cylinder aircraft engine. International Journal of Engine Research, 0, , 146808742110087.	1.4	2
88	Response Characteristics of an Amperometric NO <sub>x</sub> -O <sub>2</sub> Sensor at Non diffusion-Rate-Determining Conditions. , 0, , .		1