# Charles R. Koch

List of Publications by Year
in descending order



| 88 | 1,394 | 430442 18 | 476904 29 |
|---|---|---|---|
| papers | citations | h-index | g-index |

| 88 | 88 | 88 | 906 |
|---|---|---|---|
| all docs | docs citations | times ranked | citing authors |

| # | Article | IF | Citations |
|---|---|---|---|
| 1 | 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 |
| 2 | 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 |
| 3 | 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 |
| 4 | Flatness-Based Feedback Control of an Automotive Solenoid Valve. IEEE Transactions on Control Systems Technology, 2007, 15, 394-401. | 3.2 | 57 |
| 5 | A SKELETAL KINETIC MECHANISM FOR PRF COMBUSTION IN HCCI ENGINES. Combustion Science and Technology, 2007, 179, 1059-1083. | 1.2 | 43 |
| 6 | Predicting Start of Combustion Using a Modified Knock Integral Method for an HCCI Engine. , 2006, , . | | 38 |
| 7 | 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 |
| 8 | Controlling cyclic combustion timing variations using a symbol-statistics predictive approach in an HCCI engine. Applied Energy, 2012, 92, 133-146. | 5.1 | 36 |
| 9 | Model Predictive Control of Internal Combustion Engines: A Review and Future Directions. Energies, 2021, 14, 6251. | 1.6 | 36 |
| 10 | In-cycle control for stabilization of homogeneous charge compression ignition combustion using direct water injection. Applied Energy, 2019, 240, 1061-1074. | 5.1 | 34 |
| 11 | Predicting HCCI Auto-Ignition Timing by Extending a Modified Knock-Integral Method. , 0, , . | | 32 |
| 12 | Influence of Electrostatic and Chemical Heterogeneity on the Electric-Field-Induced Destabilization of Thin Liquid Films. Langmuir, 2011, 27, 12472-12485. | 1.6 | 31 |
| 13 | A grey-box machine learning based model of an electrochemical gas sensor. Sensors and Actuators B: Chemical, 2020, 321, 128414. | 4.0 | 30 |
| 14 | A Well-to-Wheel Comparison of Several Powertrain Technologies. , 0, , . | | 29 |
| 15 | 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 |
| 16 | Experimental test of a robust formation controller for marine unmanned surface vessels. Autonomous Robots, 2010, 28, 213-230. | 3.2 | 26 |
| 17 | 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 |
| 18 | Development and experimental validation of a real-time capable field programmable gate arrayâ€“based gas exchange model for negative valve overlap. International Journal of Engine Research, 2020, 21, 421-436. | 1.4 | 24 |

| # | Article | IF | Citations |
|---|---|---|---|
| 19 | 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 |
| 20 | An experimental investigation on hydrocyclone underflow pumping. Powder Technology, 2017, 305, 99-108. | 2.1 | 22 |
| 21 | An electrochemical model of an amperometric NOx sensor. Sensors and Actuators B: Chemical, 2019, 290, 302-311. | 4.0 | 22 |
| 22 | Phenomenological model of a solid electrolyte NOx and O2 sensor using temperature perturbation for on-board diagnostics. Solid State Ionics, 2018, 321, 62-68. | 1.3 | 21 |
| 23 | Cycle Adaptive Feedforward Approach Controllers for an Electromagnetic Valve Actuator. IEEE Transactions on Control Systems Technology, 2012, 20, 738-746. | 3.2 | 19 |
| 24 | Electrohydrodynamic patterning of ultra-thin ionic liquid films. Soft Matter, 2015, 11, 2193-2202. | 1.2 | 19 |
| 25 | Thermo-Electrohydrodynamic Patterning in Nanofilms. Langmuir, 2016, 32, 5776-5786. | 1.6 | 19 |
| 26 | Amperometric solid electrolyte NO x sensors â€“ The effect of temperature and diffusion mechanisms. Solid State Ionics, 2017, 313, 7-13. | 1.3 | 19 |
| 27 | HCCI Engine Combustion Phasing Prediction Using a Symbolic-Statistics Approach. Journal of Engineering for Gas Turbines and Power, 2010, 132, . | 0.5 | 18 |
| 28 | Model Predictive Control for Combustion Timing and Load Control in HCCI Engines. , 0, , . | | 17 |
| 29 | Compact micro/nano electrohydrodynamic patterning: using a thin conductive film and a patterned template. Soft Matter, 2016, 12, 1074-1084. | 1.2 | 17 |
| 30 | Dielectric behavior of oilâ€“water emulsions during phase separation probed by electrical impedance spectroscopy. Sensors and Actuators B: Chemical, 2017, 243, 460-464. | 4.0 | 17 |
| 31 | Control Oriented Modeling of Combustion Phasing for an HCCI Engine. Proceedings of the American Control Conference, 2007, , . | 0.0 | 16 |
| 32 | An HCCI Control Oriented Model that Includes Combustion Efficiency. IFAC-PapersOnLine, 2016, 49, 327-332. | 0.5 | 16 |
| 33 | Development and experimental validation of a field programmable gate arrayâ€“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 |
| 34 | 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 |
| 35 | Actuator Comparison for Closed Loop Control of HCCIC Combustion Timing. , 0, , . | | 14 |
| 36 | Homogeneous charge compression ignition combustion stability improvement using a rapid ignition system. International Journal of Engine Research, 2020, 21, 1846-1856. | 1.4 | 14 |

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|---|---|---|---|
| 37 | Support vector machine for a diesel engine performance and NOx emission control-oriented model. IFAC-PapersOnLine, 2020, 53, 13976-13981. | 0.5 | 14 |
| 38 | 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 |
| 39 | Dynamic Modeling of HCCI Combustion Timing in Transient Fueling Operation. SAE International Journal of Engines, 2009, 2, 1098-1113. | 0.4 | 13 |
| 40 | Electrical Perturbations of Ultrathin Bilayers: Role of Ionic Conductive Layer. Langmuir, 2014, 30, 14734-14744. | 1.6 | 13 |
| 41 | Hydrocyclone Performance and Energy Consumption Prediction: A Comparison with Other Centrifugal Separators. Separation Science and Technology, 2015, 50, 788-801. | 1.3 | 13 |
| 42 | Machine Learning-based Diesel Engine-Out NOx Reduction Using a plug-in PD-type Iterative Learning Control. , 2020, , . | | 13 |
| 43 | 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 |
| 44 | Cyclic Variations of Ignition Timing in an HCCI Engine. , 2007, , . | | 12 |
| 45 | Closed Loop Electromagnetic Valve Actuation Motion Control on a Single Cylinder Engine. , 2013, , . | | 12 |
| 46 | 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 |
| 47 | HCCI combustion timing control with Variable Valve Timing. , 2013, , . | | 11 |
| 48 | A Control Oriented Model with Variable Valve Timing for HCCI Combustion Timing Control. , 2013, , . | | 11 |
| 49 | Robotic Manipulator Control Using PD-type Fuzzy Iterative Learning Control. , 2019, , . | | 11 |
| 50 | 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 |
| 51 | Thermally induced interfacial instabilities and pattern formation in confined liquid nanofilms. Physical Review E, 2018, 98, . | 0.8 | 10 |
| 52 | A numerical study for thermocapillary induced patterning of thin liquid films. Physics of Fluids, 2020, 32, 024106. | 1.6 | 10 |
| 53 | Cycle adaptive feedforward approach control of an electromagnetic valve actuator. , 2008, , . | | 9 |
| 54 | Modeling Ranges of Cyclic Variability for HCCI Ignition Timing Control. , 2011, , . | | 8 |

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| 55 | 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 |
| 56 | Hydrocyclone equivalent settling area factor at higher concentrations and developing a performance chart. Separation and Purification Technology, 2017, 182, 171-184. | 3.9 | 8 |
| 57 | 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 |
| 58 | 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 |
| 59 | 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 |
| 60 | 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 |
| 61 | 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 |
| 62 | A Variable-Potential Amperometric Hydrocarbon Sensor. IEEE Sensors Journal, 2019, 19, 12003-12010. | 2.4 | 6 |
| 63 | 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 |
| 64 | Predicting the Distribution of Combustion Timing Ensemble in an HCCI Engine. , 2009, , . | | 5 |
| 65 | Flatness-Based Tracking of an Electromechanical VVT Actuator with Magnetic Flux Sensor. , 2006, , . | | 5 |
| 66 | Flatness-based tracking of an electromechanical VVT actuator with magnetic flux sensor. , 2006, , . | | 4 |
| 67 | Theoretical and Experimental Study of Hydrocyclone Performance and Equivalent Settling Area. , 2014, , . | | 4 |
| 68 | Particle Motion in a Macroscale, Multiwavelength Acoustic Field. Journal of Fluids Engineering, Transactions of the ASME, 2015, 137, . | 0.8 | 4 |
| 69 | 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 |
| 70 | Model Predictive Control of Jacket Tubular Reactors with a Reversible Exothermic Reaction. Industrial & Engineering Chemistry Research, 2020, 59, 18921-18936. | 1.8 | 4 |
| 71 | Knock Detection and Control in an HCCI Engine Using DWT. , 2011, , . | | 3 |
| 72 | Investigation of micro-jet active control of a precessing jet using PIV. Experiments in Fluids, 2011, 51, 1709-1719. | 1.1 | 3 |

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|---|---|---|---|
| 73 | Feedforward/Feedback control of HCCI combustion timing. , 2014, , . | | 3 |
| 74 | Discrete output regulator design for linear distributed parameter systems. International Journal of Control, 2022, 95, 603-619. | 1.2 | 3 |
| 75 | Nonlinear Dynamics in Cyclic Variations of Combustion Phasing in an HCCI Engine. , 2009, , . | | 2 |
| 76 | 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 |
| 77 | Thermocapillary patterning of non-Newtonian thin films. Physics of Fluids, 2022, 34, . | 1.6 | 2 |
| 78 | Characteristic Times for Pressure and Electrostatic Force Driven Thin Film Drainage. Journal of Computational and Theoretical Nanoscience, 2008, 5, 2060-2066. | 0.4 | 1 |
| 79 | Comparison of Crankangle Based Ignition Timing Methods on an HCCI Engine. , 2010, , . | | 1 |
| 80 | Investigating the motion of particles in an ultrasonic acoustic wave field using PIV/PTV. AIP Conference Proceedings, 2012, , . | 0.3 | 1 |
| 81 | Active and passive flow control on a precessing jet. Experiments in Fluids, 2015, 56, 1. | 1.1 | 1 |
| 82 | Response Characteristics of an Amperometric NOx-O2 Sensor at Non diffusion-Rate-Determining Conditions. , 0, , . | | 1 |
| 83 | Two-layer modeling of thermally induced BÃ©nard convection in thin liquid films: Volume of fluid approach vs thin-film model. AIP Advances, 2021, 11, 045317. | 0.6 | 1 |
| 84 | Development and testing of a universal aerosol conditioner. Aerosol Science and Technology, 2022, 56, 382-393. | 1.5 | 1 |
| 85 | A HIL testbed for small unmanned helicopter's initial controller gain tuning. , 2013, , . | | 0 |
| 86 | A Milli-Fluidic Device for Electrical Impedance Spectroscopy of Complex Liquids. , 2013, , . | | 0 |
| 87 | Dynamics of Thin Liquid Bilayers Subjected to an External Electric Field. , 2014, , . | | 0 |
| 88 | Electrified Pressure-Driven Instability in Thin Liquid Films. , 0, , . | | 0 |