Advanced Powertrain Solutions

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Powertrain Systems for Net-Zero Transport Executive Grapevine Int. Ltd.

Alternative Fuels and Advanced Vehicle Technologies for Improved Environmental Performance: Towards Zero Carbon Transportation, Second Edition provides a comprehensive view of key developments in advanced fuels and vehicle technologies to improve the energy efficiency and environmental impact of the automotive sector. Sections consider the role of alternative fuels such as electricity, alcohol and hydrogen fuel cells, as well as advanced additives and oils in environmentally sustainable transport. Other topics explored include methods of revising engine and vehicle design to improve environmental performance and fuel economy and developments in electric and hybrid vehicle technologies. This reference will provide professionals, engineers and researchers of alternative fuels with an understanding of the latest clean technologies which will help them to advance the field. Those working in environmental and mechanical engineering will benefit from the detailed analysis of the technologies covered, as will fuel suppliers and energy producers seeking to improve the efficiency, sustainability and accessibility of their work. - Provides a fully updated reference with significant technological advances and developments in the sector - Presents analyses on the latest advances in electronic systems for emissions control, autonomous systems, artificial intelligence and legislative requirements - Includes a strong focus on updated climate change predictions and consequences, helping the reader work towards ambitious 2050 climate change goals for the automotive industry

Diesel Engine System Design John Wiley & Sons

Written by experts on innovation and growth, this book provides the necessary tools to systematically develop and sustain profitable innovation pipelines. In a hypercompetitive global market, businesses must innovate to survive; yet the failure rate for innovation is extremely high. Strategists and thought leaders, Cheryl Perkins and Dr. Sanjay Mazumdar, offer a sophisticated yet practical approach for implementing successful innovation. Leveraging thought-provoking questions and powerful templates, the book outlines how companies can leverage core strengths, build internal innovation capabilities, partner effectively, and identify the promising areas to pursue. In addition, the book highlights emerging innovations in several major industries, providing fodder to fuel creative thinking and exploration of possible applications across a variety of different industries. Managers and leaders will welcome the innovation insights and examples, as well as the templates to build an organization's plan to diagnose patterns of innovation, identify opportunities, and apply emerging innovations in their own industries and businesses.

Cemeterians Elsevier

How did China move so swiftly in capital-intensive industries without labor-cost or scale advantage from bit player to the largest manufacturer and exporter in the world? This book argues that subsidies contributed significantly to China's success. Industrial subsidies in key Chinese manufacturing industries may exceed thirty percent of industrial output. Economic theories have mostly portrayed subsidies as distortive, inefficiently reallocating resources according to non-market criteria. However, China's state-capitalist regime uses subsidies to promote the governments' and the Communist Party of China's interests. Rather than aberrations, subsidies help Chinese businesses and governments produce, stabilize and create common understandings of markets; the flows of capital reflect struggles between critical Chinese actors including central and provincial governments. Concepts of state capitalism including market-transition theory, the multi-organizational Chinese state, and state as paramount shareholder, create complex and relevant understandings of Chinese subsidies. The authors develop independent measures of industrial subsidies using publicly-reported data at firm and industry levels from governmental and private sources. Subsidies include free to low-cost loans, subsidies to energy (coal, electricity, natural gas, heavy oil) and to key inputs, land and technology. Four sequential studies identify the growth of subsidies to Chinese manufacturing over time and effects on world industry: steel (2000-2007), glass (2004-2008), paper (2002-2009) and auto parts (2001-2011). Subsidies to Chinese industry affect and are affected by business strategy and trade policy. Business strategies include lobbying for subsidies and for protection from subsidized foreign competitors and managing supply chains to guard against whiplash effects of uncoordinated subsidies. The subsidized solar industry highlights how global business strategies and decisions on production location and technology development respond to production or consumption subsidies and include market (competitive) and non-market

(political) strategies. The book also covers government policies and regulation on subsidies broadly focusing on domestic consumption (antidumping and countervailing duties) and domestic production (indigenous innovation).

Energy-Efficient and Semi-automated Truck Platooning DIANE Publishing

Diesel Engine System Design links everything diesel engineers need to know about engine performance and system design in order for them to master all the essential topics quickly and to solve practical design problems. Based on the author's unique experience in the field, it enables engineers to come up with an appropriate specification at an early stage in the product development cycle. - Links everything diesel engineers need to know about engine performance and system design featuring essential topics and techniques to solve practical design problems - Focuses on engine performance and system integration including important approaches for modelling and analysis - Explores fundamental concepts and generic techniques in diesel engine system design incorporating durability, reliability and optimization theories

Vehicle Powertrain Systems MDPI

The why, what and how of the electric vehicle powertrain Empowers engineering professionals and students with the knowledge and skills required to engineer electric vehicle powertrain architectures, energy storage systems, power electronics converters and electric drives. The modern electric powertrain is relatively new for the automotive industry, and engineers are challenged with designing affordable, efficient and high-performance electric powertrains as the industry undergoes a technological evolution. Co-authored by two electric vehicle (EV) engineers with decades of experience designing and putting into production all of the powertrain technologies presented, this book provides readers with the hands-on knowledge, skills and expertise they need to rise to that challenge. This four-part practical guide provides a comprehensive review of battery, hybrid and fuel cell EV systems and the associated energy sources, power electronics, machines, and drives. Introduces and holistically integrates the key EV powertrain technologies. Provides a comprehensive overview of existing and emerging automotive solutions. Provides experience-based expertise for vehicular and powertrain system and sub-system level study, design, and optimization. Presents many examples of powertrain technologies from leading manufacturers. Discusses the dc traction machines of the Mars rovers, the ultimate EVs from NASA. Investigates the environmental motivating factors and impacts of electromobility. Presents a structured university teaching stream from introductory undergraduate to postgraduate. Includes real-world problems and assignments of use to design engineers, researchers, and students alike. Features a companion website with numerous references, problems, solutions, and practical assignments. Includes introductory material throughout the book for the general scientific reader. Contains essential reading for government regulators and policy makers. Electric Powertrain: Energy Systems, Power Electronics and Drives for Hybrid, Electric and Fuel Cell Vehicles is an important professional resource for practitioners and researchers in the battery, hybrid, and fuel cell EV transportation industry. The resource is a structured, holistic textbook for the teaching of the fundamental theories and applications of energy sources, power electronics, and electric machines and drives to engineering undergraduate and postgraduate students.

Alternative Fuels and Advanced Vehicle Technologies for Improved Environmental Performance CRC Press

The Handbook of Clean Energy Systems brings together an international team of experts to present a comprehensive overview of the latest research, developments and practical applications throughout all areas of clean energy systems. Consolidating information which is currently scattered across a wide variety of literature sources, the handbook covers a broad range of topics in this interdisciplinary research field including both fossil and renewable energy systems. The development of intelligent energy systems for efficient energy processes and mitigation technologies for the reduction of environmental pollutants is explored in depth, and environmental, social and economic impacts are also addressed. Topics covered include: Volume 1 - Renewable Energy: Biomass resources and biofuel production; Bioenergy Utilization; Solar Energy; Wind Energy; Geothermal Energy; Tidal Energy. Volume 2 - Clean Energy Conversion Technologies: Steam/Vapor Power Generation; Gas Turbines Power Generation; Reciprocating Engines; Fuel Cells; Cogeneration and Polygeneration. Volume 3 - Mitigation Technologies: Carbon Capture; Negative Emissions System; Carbon Transportation; Carbon Storage; Emission Mitigation Technologies; Efficiency Improvements and Waste Management; Waste to Energy. Volume 4 - Intelligent Energy Systems: Future Electricity Markets; Diagnostic and Control of Energy Systems; New Electric Transmission Systems; Smart Grid and Modern Electrical Systems; Energy Efficiency of Municipal Energy Systems; Energy Efficiency of Industrial Energy Systems; Consumer Behaviors; Load Control and Management; Electric Car and Hybrid Car; Energy Efficiency Improvement. Volume 5 - Energy Storage: Thermal Energy Storage; Chemical Storage; Mechanical Storage; Electrochemical Storage; Integrated Storage Systems. Volume 6 - Sustainability of Energy Systems: Sustainability Indicators, Evaluation Criteria, and Reporting; Regulation and Policy; Finance and Investment; Emission Trading; Modeling and Analysis of Energy Systems; Energy vs. Development; Low Carbon Economy; Energy Efficiencies and Emission Reduction. Key features: Comprising over 3,500 pages in 6 volumes, HCES presents a comprehensive overview of the latest research, developments and practical applications throughout all areas of clean energy systems, consolidating a wealth of information which is currently scattered across a wide variety of literature sources. In addition to renewable energy systems, HCES also covers processes for the efficient and clean conversion of traditional fuels such as coal, oil and gas, energy storage systems, mitigation technologies for the reduction of environmental pollutants, and the development of intelligent energy systems. Environmental, social and economic impacts of energy systems are also addressed in depth. Published in full colour throughout. Fully indexed with cross referencing within and between all six volumes. Edited by leading researchers from academia and industry who are internationally renowned and active in their respective fields. Published in print and online. The online version is a single publication (i.e. no updates), available for one-time purchase or through annual subscription.

Annual Index/abstracts of SAE Technical Papers SAE International

This open access book presents research and evaluation results of the Austrian flagship project “ Connecting Austria, ” illustrating the wide range of research needs and questions that arise when semi-automated truck platooning is deployed in Austria. The work presented is introduced in the context of work in similar research areas around the world. This interdisciplinary research effort considers aspects of engineering, road-vehicle and infrastructure technologies, traffic management and optimization, traffic safety, and psychology, as well as potential economic effects. The book ’ s broad perspective means that readers interested in current and state-of-the-art methods and techniques for the realization of semi-automated driving and with either an engineering background or with a less technical background gain a comprehensive picture of this important subject. The contributors address many questions such as: Which maneuvers does a platoon typically have to carry out, and how? How can platoons be integrated seamlessly in the traffic flow without becoming an obstacle to individual road users? What trade-offs between system information (sensors, communication effort, etc.) and efficiency are realistic? How can intersections be passed by a platoon in an intelligent fashion? Consideration of diverse disciplines and highlighting their meaning

for semi-automated truck platooning, together with the highlighting of necessary research and evaluation patterns to address such a broad task scientifically, makes Energy-Efficient and Semi-automated Truck Platooning a unique contribution with methods that can be extended and adapted beyond the geographical area of the research reported.

EcoProduction and Logistics CRC Press

This book contains the papers of the Internal Combustion Engines: Performance fuel economy and emissions conference, in the IMechE bi-annual series, held on the 29th and 30th November 2011. The internal combustion engine is produced in tens of millions per year for applications as the power unit of choice in transport and other sectors. It continues to meet both needs and challenges through improvements and innovations in technology and advances from the latest research. These papers set out to meet the challenges of internal combustion engines, which are greater than ever. How can engineers reduce both CO2 emissions and the dependence on oil-derivate fossil fuels? How will they meet the future, more stringent constraints on gaseous and particulate material emissions as set by EU, North American and Japanese regulations? How will technology developments enhance performance and shape the next generation of designs? This conference looks closely at developments for personal transport applications, though many of the drivers of change apply to light and heavy duty, on and off highway, transport and other sectors. - Aimed at anyone with interests in the internal combustion engine and its challenges - The papers consider key questions relating to the internal combustion engine

Energy Efficiency and Sustainable Lighting EduGorilla Publication

The UK Directory of Executive Recruitment is a comprehensive source of information on the UK's executive search and selection consultancies.

Internal Combustion Engines and Powertrain Systems for Future Transport 2019 CRC Press

The selection of automobile body materials is fundamental to the choice of fabrication method, and the characteristics and performance of the final vehicle or component. The factors behind these choices comprise some of the key technological and design issues facing automotive engineers today. Materials for Automobile Bodies brings together a wealth of information on automotive materials and material technologies to provide designers and vehicle body engineers with both a solid grounding and a quick reference to inform their material choices. Coverage includes materials processing, formability, welding and joining, anti-corrosion technologies, plus a comprehensive consideration of the implications of materials selection on these processes. Dealing with the whole assembly process from raw material to production, right through to recycling at the end of a vehicle's life, this book is the essential resource for practising engineers, designers, analysts and students involved in the design and specification of motor vehicle bodies and components. - Up-to-date detailed information on contemporary autobody materials, incorporating the explanation often lacking in other data-focused resources - Includes informative and insightful case studies on the materials and processing choices of major OEMs, including Honda, BMW and Audi - Now with more on geographical supply and usage trends, environmental concerns and end of life disassembly considerations, and how these affect selection choices

Proceedings of the FISITA 2012 World Automotive Congress EduGorilla Community Pvt. Ltd.

The book covers a wide range of applied research compactly presented in one volume, and shows innovative engineering solutions for automotive, marine and aviation industries, as well as power generation. While targeting primarily the audience of professional scientists and engineers, the book can also be useful for graduate students, and also for all those who are relatively new to the area and are looking for a single source with a good overview of the state-of-the-art as well as an up-to-date information on theories, numerical methods, and their application in design, simulation, testing, and manufacturing. The readers will find here a rich mixture of approaches, software tools and case studies used to investigate and optimize diverse powertrains, their functional units and separate machine parts based on different physical phenomena, their mathematical representation, solution algorithms, and experimental validation.

Hybrid Electric Power Train Engineering and Technology: Modeling, Control, and Simulation Oxford University Press

In this book, modeling and simulation of electric vehicles and their components have been emphasized chapter by chapter with valuable contribution of many researchers who work on both technical and regulatory sides of the field. Mathematical models for electrical vehicles and their components were introduced and merged together to make this book a guide for industry, academia and policy makers.

Materials for Automobile Bodies SAE International

EduGorilla Publication is a trusted name in the education sector, committed to empowering learners with high-quality study materials and resources. Specializing in competitive exams and academic support, EduGorilla provides comprehensive and well-structured content tailored to meet the needs of students across various streams and levels.

CTI SYMPOSIUM 2019 Springer Science & Business Media

Hybridization is an increasingly popular paradigm in the auto industry, but one that is not fully understood by car manufacturers. In general, hybrid electric vehicles (HEV) are designed without regard to the mechanics of the power train, which is developed similarly to its counterparts in internal combustion engines. Hybrid Electric Power Train Engineering and Technology: Modeling, Control, and Simulation provides readers with an academic investigation into HEV power train design using mathematical modeling and simulation of various hybrid electric motors and control systems. This book explores the construction of the most energy efficient power trains, which is of importance to designers, manufacturers, and students of mechanical engineering. This book is part of the Research Essentials collection.

Automotive Systems Elsevier

Amadeus announces it has acquired the airline network planning software business of Optym, a leader in network optimization. The two companies have been partners for more than three years, jointly delivering solutions to Southwest Airlines, easyJet, and LATAM Airlines. The Amadeus Sky Suite will be further integrated into the Amadeus Airline Platform, including software for network optimization and simulation, frequency and capacity planning, network planning and forecasting, and a flight scheduling development platform. As a result of this transaction, 90 employees will be dedicated to the Amadeus Sky Suite. These employees join the Airlines R&D unit, reporting to Christophe Bousquet, Senior Vice President, Airlines R&D; the Amadeus Sky Suite is part of Amadeus ' Airlines Offer Suite of solutions. The acquisition is effective immediately, and the companies have begun integration and employee onboarding, continuing to serve customers with a focus on business as usual. Financial details are confidential. Optym will continue to operate as a separate entity focused on other areas of business.

Electric Vehicles Routledge

The transport sector continues to shift towards alternative powertrains, particularly with the UK Government ' s announcement to end the sale of petrol and diesel passenger cars by 2030 and increasing support for alternatives. Despite this announcement, the internal combustion continues to play a significant role both in the passenger car market through the use of hybrids and sustainable low carbon fuels, as well as a key role in other sectors such as heavy-duty vehicles and off-highway applications across the globe. Building on the industry-leading IC Engines conference, the 2021 Powertrain Systems for Net-Zero Transport conference (7-8 December 2021, London, UK) focussed on the internal combustion engine ' s role in Net-Zero transport as well as covered developments in the wide range of propulsion systems available (electric, fuel cell, sustainable fuels etc) and their associated powertrains. To achieve the net-zero transport across the globe, the life-cycle analysis of future powertrain and energy was also discussed. Powertrain Systems for Net-Zero Transport

provided a forum for engine, fuels, e-machine, fuel cell and powertrain experts to look closely at developments in powertrain technology required, to meet the demands of the net-zero future and global competition in all sectors of the road transportation, off-highway and stationary power industries.

Intelligent Control of Connected Plug-in Hybrid Electric Vehicles Springer Nature

The lighting of both exteriors and interiors is a field within electrical and lighting engineering, where important technological changes have been taking place oriented towards environmental sustainability and energy efficiency. LED technology has been gradually gaining ground in the world of lighting over other technologies due to its high lighting and energy efficiency and savings. However, some problems related to overheating or associated regulation are emerging. This has prompted the search for new, more efficient, and sustainable forms of lighting. This book presents successful cases related to energy efficiency and lighting that may be of great interest to those trying to enter the world of scientific research.

Electric Systems for Transportation Springer

For years, diesel engines have been the focus of particulate matter emission reductions. Now, however, modern diesel engines emit less particles than a comparable gasoline engine. This transformation necessitates an introduction of particulate reduction strategies for the gasoline-powered vehicle. Many strategies can be leveraged from diesel engines, but new combustion and engine control technologies will be needed to meet the latest gasoline regulations across the globe. Particulate reduction is a critical health concern in addition to the regulatory requirements. This is a vital issue with real-world implications. Reducing Particulate Emissions in Gasoline Engines encompasses the current strategies and technologies used to reduce particulates to meet regulatory requirements and curtail health hazards - reviewing principles and applications of these techniques. Highlights and features in the book include: Gasoline particulate filter design, function and applications Coated and uncoated three way catalyst design and integration Measurement of gasoline particulate matter emission, both laboratory and PEMS The goal is to provide a comprehensive assessment of gasoline particulate emission control to meet regulatory and health requirements - appealing to calibration, development and testing engineers alike.

Reducing the Fuel Consumption and Greenhouse Gas Emissions of Medium- and Heavy-duty Vehicles John Wiley & Sons

With the changing landscape of the transport sector, there are also alternative powertrain systems on offer that can run independently of or in conjunction with the internal combustion (IC) engine. This shift has actually helped the industry gain traction with the IC Engine market projected to grow at 4.67% CAGR during the forecast period 2019-2025. It continues to meet both requirements and challenges through continual technology advancement and innovation from the latest research. With this in mind, the contributions in Internal Combustion Engines and Powertrain Systems for Future Transport 2019 not only cover the particular issues for the IC engine market but also reflect the impact of alternative powertrains on the propulsion industry. The main topics include: • Engines for hybrid powertrains and electrification • IC engines • Fuel cells • E-machines • Air-path and other technologies achieving performance and fuel economy benefits • Advances and improvements in combustion and ignition systems • Emissions regulation and their control by engine and after-treatment • Developments in real-world driving cycles • Advanced boosting systems • Connected powertrains (AI) • Electrification opportunities • Energy conversion and recovery systems • Modified or novel engine cycles • IC engines for heavy duty and off highway Internal Combustion Engines and Powertrain Systems for Future Transport 2019 provides a forum for IC engine, fuels and powertrain experts, and looks closely at developments in powertrain technology required to meet the demands of the low carbon economy and global competition in all sectors of the transportation, off-highway and stationary power industries.

Subsidies to Chinese Industry Springer Science & Business Media

Transportation systems play a major role in the reduction of energy consumptions and environmental impact all over the world. The significant amount of energy of transport systems forces the adoption of new solutions to ensure their performance with energy-saving and reduced environmental impact. In this context, technologies and materials, devices and systems, design methods, and management techniques, related to the electrical power systems for transportation are continuously improving thanks to research activities. The main common challenge in all the applications concerns the adoption of innovative solutions that can improve existing transportation systems in terms of efficiency and sustainability.