SAE INTERNATIONAL®

EVENT GUIDE

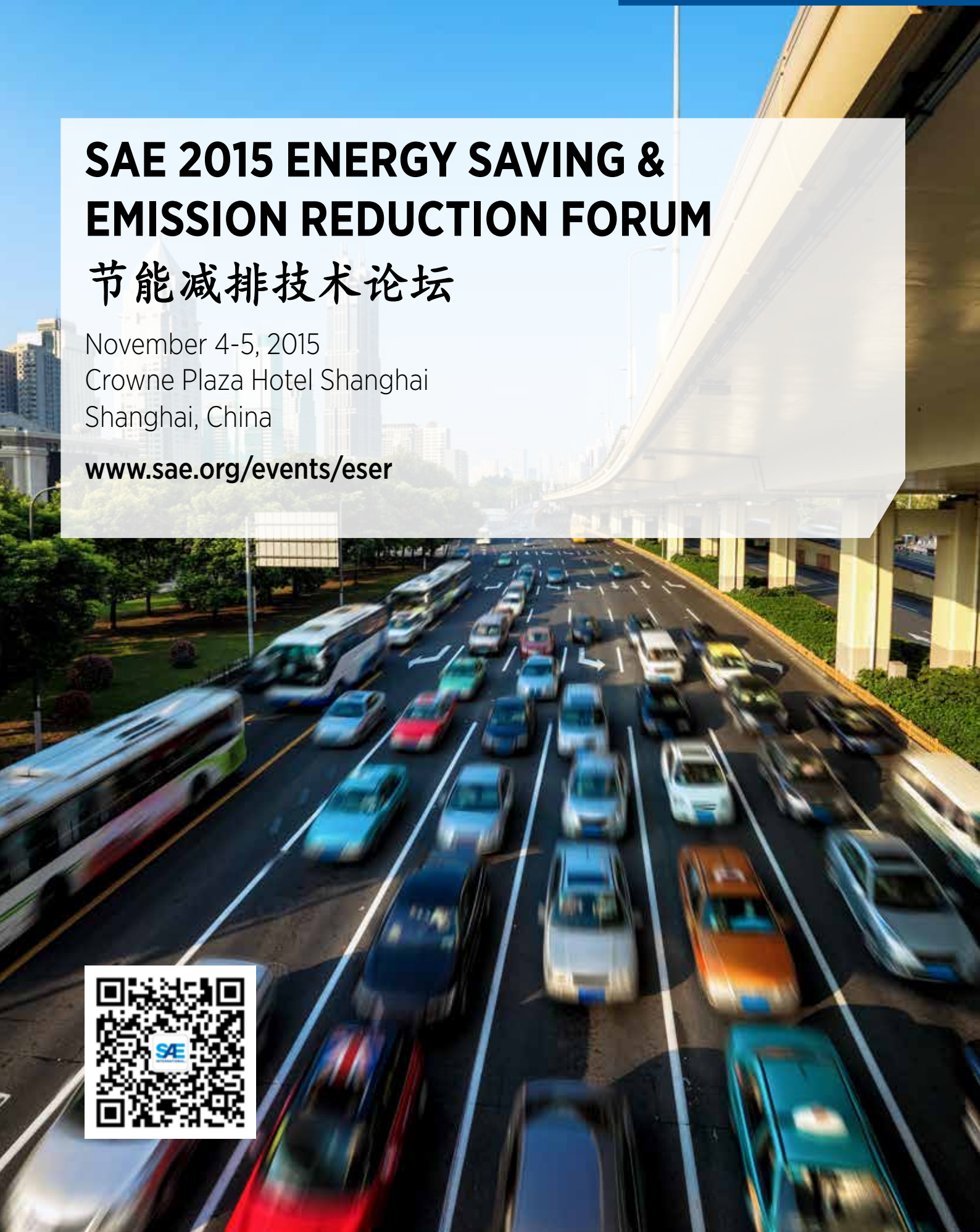
Includes Final Program and Exhibit Directory

SAE 2015 ENERGY SAVING & EMISSION REDUCTION FORUM

节能减排技术论坛

November 4-5, 2015
Crowne Plaza Hotel Shanghai
Shanghai, China

www.sae.org/events/eser



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A professional society, SAE International is the authority on vehicle engineering. We develop more vehicle technical standards—and more aerospace standards—than any other organization. We offer the largest library of vehicle engineering content. And, we bring together the largest global network of engineers in the world.

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Since 1905, SAE has connected automotive, aerospace, and commercial vehicle engineers to each other and the technical resources needed to foster a lifetime of learning, solutions to improved vehicle technology, and the advancement of the mobility industry.

SAE International—whose first vice president was an up-and-coming engineering talent by the name of Henry Ford and included early supporters like Orville Wright—was based on providing a platform for collaborative and informed dialog and the impetus of its earliest standardization efforts. Today, the sharing of information remains at its core, with SAE being acknowledged globally as the ultimate knowledge source for mobility engineering.

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WHAT'S INSIDE

EMERGENCY PROCEDURES DURING THE SAE 2015 ENERGY SAVING & EMISSION REDUCTION FORUM

During the SAE 2015 New Energy Vehicle Forum attendees are to follow the established emergency guidelines of the facility where the emergency occurs. **Based on the location of the incident, report emergencies to the nearest venue representative and/or security personnel if available, or report to the SAE operations office located in the Registration Center.**

Should a catastrophic event occur, attendees should follow the safety and security instructions issued by the facility at the time of the event. This includes listening for instructions provided through the public address system and following posted evacuation routes if required.

In the event of an emergency or a major disruption to the schedule of events at the SAE 2015 New Energy Vehicle Forum, attendees and exhibitors may call this number to receive further information about the resumption of this event. Updates will also be provided via the SAE website at http://www.sae.org

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SAE 2016 WORLD CONGRESS & EXHIBITION

POWERING POSSIBILITIES

April 12-14, 2016
Cobo Center
Detroit, MI, USA

sae.org/congress

EVENT OVERVIEW

TIME	WEDNESDAY NOVEMBER 4	THURSDAY NOVEMBER 5
9:00	Keynote Speech	Keynote Speech
9:15		
9:45		
10:15	Technical Session	Technical Session
10:45	Tea Break	Tea Break
11:15	Technical Session	Technical Session
11:45		
12:15	Networking Lunch	Networking Lunch
12:45		
13:30	Technical Session	Technical Session
14:00		
14:30		
15:00	Tea Break	Tea Break
15:30	Technical Session	Technical Session
16:00	Technical Panel	
16:30		
17:00	Technical Session	
17:30		

The purpose of this events is to provide an open exchange of ideas. Remarks made by participants or members of the audience cannot be quoted or attributed to the individual or their company unless express permission has been granted by the individual and their company. Any record of remarks, discussion, or photographs may not be used unless express permission has been granted by the individual and their company.

Registration:

Nov 3	Tuesday	14:00 - 17:00	Hotel Lobby, 1st Floor
Nov 4	Wednesday	08:00 - 17:30	Shanghai Ballroom Foyer, 4th Floor
Nov 5	Tuesday	08:00 - 13:00	Shanghai Ballroom Foyer, 4th Floor

Tea Break:

Location: Shanghai Ballroom Foyer, 4th Floor

Networking Lunch:

Location: Park Cafe, 1st Floor

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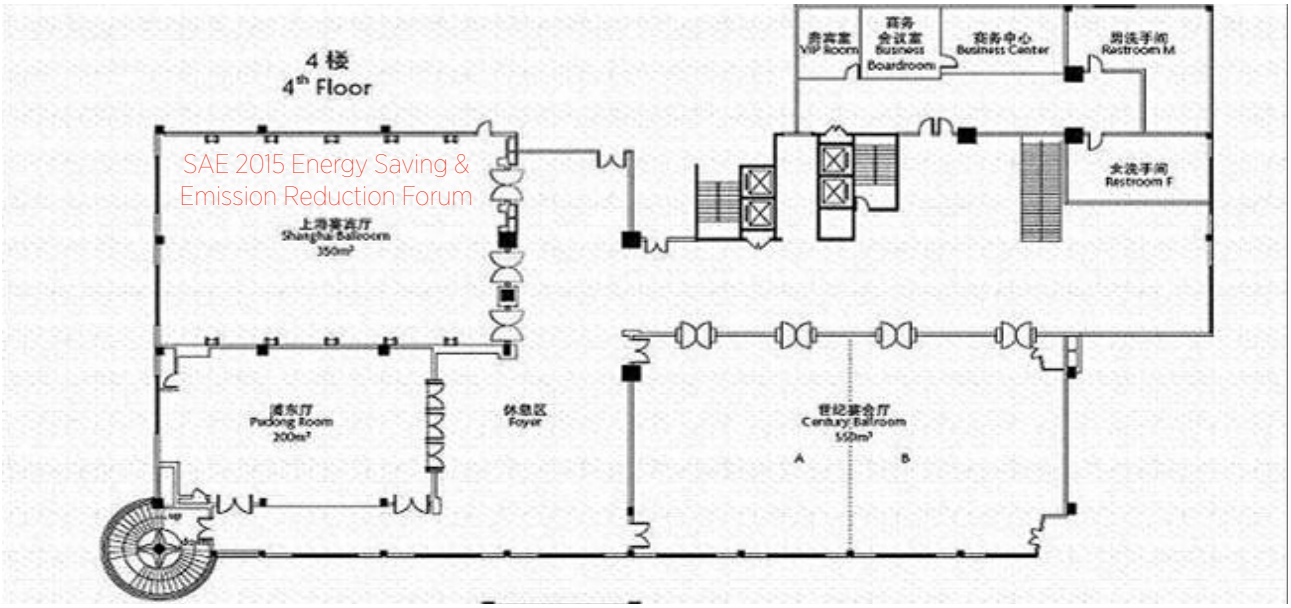
FLOORPLAN



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EVENT PROGRAM

HIGH EFFICIENCY COMBUSTION SYSTEMS AND EMISSIONS REDUCTION

DAY ONE - WEDENSDAY, NOVEMBER 4

09:15

Welcome Speech
SAE International

09:30

KEYNOTE: Driving the Future: Electric, Intelligent, Connected Vehicles
Dr. Gary Smyth, *Executive Director, Global R&D Laboratories, GM Global Research and Development*

10:15

Next Generation Compression Ignition Engines and Future Fuel Opportunities
Robert Wagner, *Director of the Fuels, Engines, and Emissions Research Center, Oak Ridge National Laboratory*

11:15

Towards 60% Fuel Efficient Engine
Bengt Johansson, *Professor of Internal Combustion Engines, Lund University*

11:45

Leveraging the Transformative Fusion of Sensing, Computing, and Control
Wensi JIN, *Automotive Industry Manager, MathWorks Inc.*

13:30

A Comparison Between Low Voltage, Low-Cost Hybridization Solutions
Yu YANG*, Business Development Partner, Punch Powertrain*

14:00

Recent Progress of the Upcoming China VI / 6 Emissions Regulations in China
Dr. Reggie Zhan, *Director, Diesel Engines and Emissions R&D, Southwest Research Institute*

14:30

Fuel-ethers and Their Key Contribution to Enable Higher Vehicles Efficiency and Improved Air Quality
Clarence Woo, *Director at Asian Clean Fuels Association*

15:30

Advanced Glazing Technologies Reduce Solar Load and Offer Lightweight Opportunities that Result in Lower Energy Consumption and Emissions
Mukesh Rustagi, *Strategic Product Management, Pittsburgh Glass Works, LLC*

16:00

High Efficiency Combustion Systems and Emissions Reduction Panel Discussion
MODERATORS:
Robert Wagner, *Director of the Fuels, Engines, and Emissions Research Center, Oak Ridge National Laboratory*
Johney Green, Jr., *Director, Energy and Transportation Science Division, Oak Ridge National Laboratory*
PANELISTS:
Dr. Reggie Zhan, *Director, Diesel Engines and Emissions R&D, Southwest Research Institute*
Bengt Johansson, *Professor of Internal Combustion Engines, Lund University*

17:00

Ford's journey in the Application of Aluminium and Lightweighting Technologies to Deliver the World's Very First High Volume Mass Production Aluminum Passenger Vehicle
Michael Paradisis, *Body Structure Engineering Manager, Ford China*

EVENT PROGRAM

LIGHTWEIGHTING

DAY TWO - THUSDAY, NOVEMBER 5

09:00

KEYNOTE: Teardown and Analysis of BMW's I3

***Sandy Munro**, Chief Executive Officer,Munro & Associates, Inc.*

10:15

Development of MG GS: a SUV by SAIC MOTOR

***Guohua QIU,** Director of Body Department, SAIC Technical Center*

11:15

Innovative Material Innovation Solution

***Li WANG,** Principal Research, Auto Steel Research Center, Bao Steel Central Research Insitute*

11:45

Application of Light-Weighting Technology in Geely Automobile and Its Future

***Fei XIONG,** Chief Engineer, Geely Automobile Research Institute*

13:30

Mastering Innovation through Lightweighting Leadership

***Qiong WANG,** China Technology Strategy VP, Asia R&D VP-Seating, Faurecia (China) Holding Co., Ltd.*

14:00

Characterization of Material Mechanical Behavior Under Impact Loading and Application in Car Crash Design

***Xinghua LAI,** Deputy Director of Institute of Vehicle Lightweight Technology, Suzhou Automotive Research Institute, Tsinghua University*

***Bo LIU,** Senior Engineer, Chongqing ChangAn Automobile Company Limited*

14:30

Recent Progress of the Upcoming China VI / 6 Emissions Regulations in China
Magna/Ford MMLV Concept Vehicle - Design and Comparative LCA Study

***Timothy Skszek,** Principal Investigator of the MMLV Program, Magna International*

15:30

Lightweight Solution for You through Innovation Materials and Design

***Hans Mikota,** Head of Research and Development, Georg Fischer Automotive Business Unit*

***Christoph Stapf,** Head of Marketing & Sales, Georg Fischer Automotive Business Unit China*

16:00

Profits of Lightweight Metal Castings Start in the Melt Shop

***Rainer Erdmann,** General Manager, Asia-Pacific, StrikoWestofen Co.Ltd*

Gary Smyth

Executive Director
Global R&D Laboratories
GM Global Research and Development

Dr. J. Gary Smyth is Executive Director, Global R&D Laboratories, GM Global Research and Development.

Smyth began his career with GM in 1989 as a senior project engineer with GM Advanced Product Engineering in Warren, Michigan. He has held numerous positions in the Advanced Powertrain organization and was named Engineering Director, Advanced Propulsion System Controls in 1999, with responsibilities including advanced diesel and advanced emission development. In September 2004, he transferred to GM R&D as Director, Powertrain Systems Research Lab, where his responsibilities included directing all research and development globally for conventional and hybridized propulsion systems. In June 2010, Gary was promoted to Executive Director, North American Science Labs, GM Global R&D. A native of Northern Ireland, Smyth attended The Queen's University of Belfast (QUB). He studied Mechanical Engineering and received a B.Sc. in 1985 and a PhD in 1991. He is an active member of SAE International, including a founding member of the Executive Leadership Team for the SAE North American International Powertrain Conference (NAIPC).

KEYNOTE PRESENTATION:

DRIVING THE FUTURE: ELECTRIC, INTELLIGENT, CONNECTED VEHICLES

ABSTRACT:

Evolving customer expectations, rapid advances in technology, and growing concerns about the environment, energy, and urban congestion are driving profound change in today's auto industry. In response to these challenges, auto companies are increasing powertrain efficiency and vehicle electrification, introducing connected vehicle capabilities, and adding more intelligence to vehicle electronics, controls and safety systems. The convergence of these technologies will ultimately lead to self-driving vehicles and transform personal transportation. This presentation will provide a high-level overview on the future of personal mobility and discuss major opportunities and challenges in the new automotive environment.

Robert Wagner

Director of the Fuels, Engines, and Emissions Research Center
Oak Ridge National Lab

Dr. Robert Wagner is the Director of the Fuels, Engines, and Emissions Research Center and a Fellow of the Society of Automotive Engineers (SAE) International. His responsibilities include coordination and development of strategic internal and external collaborations at ORNL to better support the mission of the United States Department of Energy (DOE) Vehicle Technologies Office. This includes the integration of ORNL expertise in high performance computing, neutron sciences, material sciences, and advanced manufacturing to accelerate the development of advanced transportation technologies. Dr. Wagner is the ORNL lead for the U.S.-China Clean Energy Research Center on Clean Vehicles, holds leadership positions with SAE and the American Society of Mechanical Engineers, and has authored more than 100 technical publications.

PRESENTATION:

NEXT GENERATION COMPRESSION IGNITION ENGINES AND FUTURE FUEL OPPORTUNITIES

ABSTRACT:

Gasoline compression ignition (GCI) combustion has become of increasing interest in recent years due to the potential for very high thermal efficiencies with significant reductions in many criteria pollutants. This interest is driven by significant advances in enabling technologies such as fuel injection systems, turbomachinery, valve actuation, sensors, and onboard computers. The combination of these technologies and others has led to new real-time control opportunities which have led to GCI combustion being potentially viable for production applications. GCI combustion is not a new concept but has evolved over the past several decades. Earlier GCI research was focused primarily on homogeneous charge compression ignition (HCCI) combustion. More recent years have seen increasing interest in a continuous range of GCI combustion modes spanning fully homogeneous HCCI to partial fuel stratification modes to full stratification modes which are diesel-like in execution. This presentation will discuss the challenges and opportunities of a wide spectrum of GCI combustion modes and fuel selections under investigation by researchers with examples from multi-cylinder engine research at Oak Ridge National Laboratory.

Bengt Johansson
Professor of Internal Combustion Engines
Lund University

Bengt Johansson is Professor in Internal Combustion Engines at Lund University since 2001 and head of the combustion engine group since 2004. He is also director of the Centre of Competence Combustion Processes with a number of international industry partners since 2003. His group is among the leaders in low temperature combustion research and has published more than 250 papers within HCCI.

He is also part time professor at TU Eindhoven, the Netherlands 2011-2015.

He was chairman of the SAE Engine Combustion Committee 2012-2015 and since 2006 chair for the HCCI fuels collaborative task within the International Energy Agency, IEA.

PRESENTATION:

TOWARDS 60% FUEL EFFICIENT ENGINE

ABSTRACT:

The internal combustion engine has great potential for high fuel efficiency. The ideal otto and diesel cycles can easily achieve more than 70% thermodynamic efficiency. The problems come when those cycles should be implemented in a real engine. Extreme peak pressure during the cycle will call for a very robust engine structure that in turn will increase friction and hence reduce mechanical efficiency. A very high compression ratio also increase the surface to volume ratio and promote heat losses, taking away much of the benefits from the theoretical cycle.

The presentation will start with a standard SI engine and it's efficiency as a function of load. Then a high compression ratio SI with be introduced and compared with the same engine operated in HCCI mode. The four efficiencies of SI as well as HCCI will be discussed and variations like HCCI with negative valve overlap and higher mean piston speed will be shown.

A next step is the results with Partially Premixed Combustion. With PPC the indicated efficiency was shown to be up to 57%, thus 10% up from the best HCCI engine of 47%. However, to get the very high efficiency a high dilution level is needed. This is a challenge for the gas management system and hence gas exchange and mechanical efficiencies can suffer.

The final part of the presentation is giving an engine concept that can enable the conditions for PPC combustion but with much improved gas exchange and mechanical efficiency. It enables an effective compression ratio in excess of 60:1 but with much less cylinder surface area. The concept also enables low friction and hence high mechanical efficiency. The basic concept will be explained and initial simulation results will be presented.

Wensi JIN
Automotive Industry Manager
MathWorks

Wensi Jin is Automotive Industry Manager at MathWorks, responsible for strategic planning and technology rollout. His focus is to foster industry adoption of Model-Based Design and MathWorks tools. Prior to joining MathWorks, he worked on real-time simulation and hardware in-the-loop test systems, first as an applications engineer then as a business development manager. He also worked as a development engineer on automatic transmissions control systems at General Motors Powertrain. Wensi holds a degree in Electrical Engineering from the University of Texas at Austin.

PRESENTATION:

LEVERAGING THE TRANSFORMATIVE FUSION OF SENSING, COMPUTING, AND CONTROL

ABSTRACT:

From their origins in meeting emissions and fuel economy standards, embedded control systems are now proliferating across other areas such as improved safety, comfort and convenience, connectivity, and much more. To address the consequent increase in system and software complexity, automotive industry is using Model-Based Design to design, analyze and implement the software in product development. Now, we are ushering in a new era of transformation where automotive and consumer technologies are merging and the availability of low-cost sensing, computing, and control technologies is allowing the automotive industry to create new products and lines of business. This presentation will start off with current trends in Model-Based Design application for product development, then discuss how sensing, computing, and control are impacting the automotive industry, and how model-based methods can enable you to realize the new opportunities generated by this transformation.

Yu YANG
Business Development Partner
Punch Powertrain

Yu Yang is Business Development Partner at Punch Powertrain in Belgium. His main focus is the Chinese and emerging market. Before, Yu served two years as Project Manager at Punch, managing multiple CVT application projects. Before joining Punch, Yu was Project Manager at Bekaert in Belgium, leading international teams in renewable energy domain. Yu also had five year experience at IMEC in Belgium, leading projects on electronics development.
Yu Yang holds a PhD in MSE from Catholic University of Leuven (KUL) in Belgium, a master degree in EE and a bachelor degree in MSE both from Tsinghua University in Beijing, China.

PRESENTATION:

A COMPARISON BETWEEN LOW VOLTAGE, LOW-COST HYBRIDIZATION SOLUTIONS

ABSTRACT:

Fuel economy and CO2 regulations world-wide demand for a strict but clear average fleet fuel reduction target in the coming decade. A massive uptake of light to mild hybridization is therefor required. In this presentation we compare existing and new 12V and 48V solutions on functionality, cost, performance and off course the fuel economy improvements. Special focus is given on new powerful solutions using combinations of 48V battery- and kinetic energy (flywheel) storage. It is shown that such low voltage dual storage solutions compete with high voltage full hybrid performances at a fraction of the cost.

Dr. Reggie Zhan
Director, Diesel Engines and Emissions R&D
Southwest Research Institute

Over 20 years professional experience in emissions control, automotive fuels, engine and vehicle technologies with Southwest Research Institute, Ford Motor Company and Sinopec. Extensive experience in automotive emissions regulations and control technologies.

Technical advisor for the Ministry of Environmental Protection (MEP) of China and Beijing Environmental Protection Bureau (BEPB), actively involving emissions regulation development in China.

PRESENTATION:

RECENT PROGRESS OF THE UPCOMING CHINA VI / 6 EMISSIONS REGULATIONS IN CHINA

ABSTRACT:

The next generation of light-duty and heavy-duty emission regulations will be released for public comments by the end of this year or early next by the Ministry of Environmental Protection (MEP) of China, aiming to be implemented around 2020 timeframe. For light-duty vehicles, both criteria and evaporative emissions, as well as OBD requirements will be much enhanced than the Euro 6 regulation. The "fuel neutral rule" will be applied for gasoline, diesel and alternative fueled vehicles. In heavy-duty segment, while diesel particulate filter (DPF) will be mandated for PM control, off-cycle NOx emissions, especially over low-speed urban driving cycle will be significantly tighten.

Clarence Woo
Executive Director
Asian Clean Fuels Association

Mr Clarence Woo has been involved in the oil, gas and petrochemical industry for the past 20 years. He started his career with Mobil Oil Singapore and has experienced numerous responsibilities within Mobil Oil. They included Technical Services, which provided technical expertise and training in the field of lubricants, fuels, and LPG.

Mr Woo worked in Ethyl Corporation as Senior Area Manager managing petroleum additive sales to various countries in Asia Pacific. Mr Woo had also served as a Product Manager, Fuel Additives, where he had helped managed fuel additive sales and fuel additive developments in Asia.

Mr Woo is currently the Executive Director of Asian Clean Fuels Association that supports governments and encourages industries to pursue the use of cleaner fuels for a cleaner environment through the attributes of sound science, cost effectiveness and sustainability.

Significant achievements

In China, he was successfully involved in a China Phase 3 (Euro 3 equivalent) Gasoline Research Programme in collaboration with the China State Environment Protection Agency and Tsinghua University. Mr Woo also assisted the government in looking into post implementation programmes and Phase 4 and 5 (Euro equivalent) specifications.

Partnered through the Association with the United Nations Environment Programme (UNEP) to encourage the Council of Arab Ministers Responsible for the Environment within the Arab League to issue a resolution to totally phase out lead by 2008 and work towards reducing sulfur in fuels in the region.

PRESENTATION:

FUEL-ETHERS AND THEIR KEY CONTRIBUTION TO ENABLE HIGHER VEHICLES EFFICIENCY AND IMPROVED AIR QUALITY

ABSTRACT:

Demand for fuel efficiency and fuel economy constantly increases world-wide. Internal combustion engines and fuels represent an integrated system, continuously examined for enhancements to improve these measures. Fuel ethers are blending components used precisely to enhance performance and provide cleaner, more sustainable gasoline. As clean replacements for toxic compounds, and enablers of improved air quality through a reduction of vehicle emissions of exhaust pollutants like VOCs and PM, fuel ethers enable a global path towards more sustainable, clean, efficient, and affordable mobility. . Thanks to their naturally high octane numbers they also contribute to economies of fuel, enhancing efficient combustion of petrol, while not causing engine damage or corrosion of parts and enabling the transition to higher compression ratio, more efficient engines. Fuel ethers help as well to fulfil CO2 emissions reduction goals by offering octane boosting properties that reduce the need to use more refinery energy-intensive fuel components. Ethers are also fully compatible with existing refinery infrastructure, fuel supply and distribution system. The presentation provides a concise, updated view on most relevant aspects.

Mukesh Rustagi
Strategic Product Management
Pittsburgh Glass Works

Mukesh Rustagi has been with PPG/PGW since 1981, when he started working as a Process Control Engineer. He has worked in various positions within Engineering for the chemical and glass operations of PPG, before moving to the Marketing and Product Management functions. In his latest role of Strategic Product Management, he has led the development of the solar control and lightweight glazing. He was actively involved with the various organizations in the USA that developed the off-cycle credit for emissions reduction from the use of solar control glazing. Mukesh got his Bachelor of Technology degree from the Indian Institute of Technology, New Delhi, and his Masters of Engineering and MBA from The Ohio State University, Columbus, Ohio. Mukesh has recently spent nine months in Shanghai working on a new Joint Venture in China, Shandong PGW Jinjing Automotive Glass, PJG.

PRESENTATION:

ADVANCED GLAZING TECHNOLOGIES REDUCE SOLAR LOAD AND OFFER LIGHTWEIGHT OPPORTUNITIES THAT RESULT IN LOWER ENERGY CONSUMPTION AND EMISSIONS

ABSTRACT:

With the widespread use of air conditioning in automobiles, managing the heat load in the vehicle is an extremely important factor. Reducing the heat load improves consumer comfort and reduces the energy required to maintain cabin temperature at a comfortable level. This energy reduction is then reflected in the lower greenhouse gas emissions for vehicles with internal combustion engines and improved driving

range for the electric vehicles.

Glazing has been an essential part of the automotive design. With consumers demanding a more open feel when they are in a car, the glazing area has increased dramatically over the past ten years. Cabin heat load is largely dependent on glazing area and glazing performance. This presentation will discuss the heat load reduction through glazing choices, and the impact on energy consumption based on the glazing chosen.

Recent developments in lightweight technologies have provided opportunities to reduce weight by more than 20 Kg per vehicle. These technologies, combined with improved solar performance, can provide an even greater fuel economy benefit and reduce emissions further.

Johney Green, Jr.
Director, Energy and Transportation Science Division
Oak Ridge National Laboratory

Dr. Johney Green directs the Energy and Transportation Science Division at ORNL, which spans building technologies; sustainable industry and manufacturing; fuels, engines, and emissions; transportation analysis; and vehicle systems integration. He has worked with Ford Motor Company on research to reduce diesel engine emissions. He completed an assignment at the DOE Vehicle Technologies Office as technical coordinator for the 21st Century Truck Partnership. He earned a B.S. in mechanical engineering from the University of Memphis and an M.S. and Ph.D. in mechanical engineering from the Georgia Institute of Technology. He holds two U.S. patents and has authored many technical publications.

PANEL:

HIGH EFFICIENCY COMBUSTION SYSTEMS AND EMISSIONS REDUCTION PANEL DISCUSSION

Michael Paradisis
Body Structure Engineering Manager
Ford China

PRESENTATION:

Ford's journey in the application of Aluminium and lightweighting technologies to deliver the world's very first high volume mass production aluminum passenger vehicle.

Sandy Murno

Chief Executive Officer
Munro & Associates, Inc.

A frequent speaker and advisor to some of the world's top manufacturing executives on implementing cultural change and integrated product development strategies, Sandy Munro offers clients a wealth of perspective and a penchant for technology transfer. Although he began his career in the automotive industry and has worked extensively with global automakers and Tier 1 suppliers, his expertise cuts across virtually every segment of the manufacturing sector.

With more than 40 years of experience in designing, building and processing components, Sandy brings clients an unmatched breadth of experience gained in the manufacturing and engineering environments. After beginning his career as a toolmaker, he worked his way up the ranks to designer and eventually became engineering manager at Valiant Machine Tool Co., a leading Detroit-area specialty tool company.

In 1978, Sandy joined Ford Motor Co. and shifted roles from machine tool and automation designer to manufacturing engineer. After several projects where he helped increase productivity on engine assembly lines, he was promoted to senior automation specialist. There he supervised the installation and development of new, more productive engine manufacturing lines.

In 1982, Sandy met Dr. E. Deming and his career dramatically changed. Dr. Deming's phrase of "As variation is reduced, quality will increase" resonated with Sandy and he became a zealot in reducing variation not only on the manufacturing floor, but also in the design phase where, according to Sandy, all variation stems from.

At Ford, Sandy was named corporate coordinator - design for automation (DFA) and, in this new position, he helped the company utilize DFA to save billions of dollars, improve quality and reduce development cycles during the early 1980's by improving manufacturability at very early stages. For his efforts, Sandy was twice nominated for the Henry Ford Award.

In 1988, he was convinced by Dr. Deming to leave Ford and start his own company, which became Munro & Associates, Inc. The company has grown to become a world class engineering consulting firm that specializes in upfront, predictive methods to increase profitability by improving quality, reliability and value, while reducing total lifecycle costs. The Deming spirit and philosophy is evident in all of Munro's products and services.

Evangelical in spreading the gospel of paradigms shifts, concurrent engineering and innovation, Sandy has chaired and spoken at numerous engineering conferences and symposia around the world.

He has also lectured at the University of Michigan, Stanford, Purdue, the University of Rhode Island and other universities. Sandy is the NASA (National Aeronautics and Space Administration) Chairman of the Michigan Small Aircraft Transportation System (MI SATS), a board member for NCAM (National Council for Air Mobility), a member of the Society of Automotive Engineers, Society of Manufacturing Engineers and the Engineering Society of Detroit.

KEYNOTE PRESENTATION:

VEHICLE LIGHTWEIGHTING: TEARDOWN AND ANALYSIS OF BMW'S I3

ABSTRACT:

In late 2014, Munro & Associates conducted the first extensive teardown, costing and benchmark study of the BMW i3 urban electric car to help manufacturers from a variety of industries understand the processes and costs involved in this revolutionary vehicle. During the proposed presentation, Sandy will discuss key findings from the five vehicle system reports, highlights of the production methods BMW used for the i3, as well as surprises and lessons learned from their teardown with the vehicle.

Guohua QIU

Director of Body Department
SAIC Technical Center

Mr. Qiu Guohua, Senior Engineer, director of Body Department in SAIC MOTOR, automobile lightweight expert for China Auto Lightweight Technology Innovation Strategic Alliance. He has been engaged in vehicle R&D for many years. In his career, Mr. Qiu has worked as the Senior Manager of the Body Interior & Exterior section in PATAC and Director of the Body Department in SAIC MOTOR. In recent years, Mr. Qiu has participated in the body R&D of many vehicles, including Chevrolet Sail, Buick Lacrosse, and Roewe and MG branded vehicles. He won China's automobile industry science and technology award, Shanghai science and technology progress award, etc in past years

PRESENTATION:

DEVELOPMENT OF MG GS: A SUV BY SAIC MOTOR

ABSTRACT:

MG GS is the first SUV in the history of MG branded vehicles, which has been put to the market for half a year. In the presentation, Mr. Guohua Qiu will introduce the BIW lightweighting designs, including material selections, structure designs and manufacturing processes and some other details, with a target of high BIW performances.

Li WANG

Principal Research
Auto Steel Research Center
Bao Steel Central Research Insitute

Since 1992, Li Wang has been working in the research and development technology center of Baosteel, the largest steel producer in China, and has mainly been engaged in research and development of automotive steel sheets. He has developed HSS-IF, HSLA, TRIP, DP and Q&P steels for successful commercialization at Baosteel. He is a senior engineer and holds a PhD in metallurgy and materials science. Prof. Wang serves as a masters and doctoral supervisor for graduate students at Shanghai Jiao Tong University, and was recently appointed Vice-Director of the State Key Laboratory for Development and Application Technology of Automotive Steels.

PRESENTATION:

INNOVATIVE MATERIAL INNOVATION SOLUTION

ABSTRACT:

Design,process and materials are the three key aspects to reduce weight of the car, the innovative materials esp. The third generation advanced high steel sheets are developed in recent years,the status of 3rd Gen. AHSS development and application are introduced,and the new lightweighting solution for B pillar made by 3rd Gen. AHSS is described in detail.

Fei XIONG

Chief Engineer Professor Ph.D. Candidate Supervisor
Geely Automobile Research Institute

Dr. Fei Xiong has a extensive experience both local and overseas. After graduated from Beijing University of Science and Technology with Bachelor Degree, he furthered his study in Australia and obtained Master Degree and Ph.D. Dr. Fei Xiong has been employed as an Engineer for Shanghai Iron and Steel Research Institute, an Engineer and later manager for Hadaway Industrial Corp., a Research Associate for Aust Industrial Innovation Research Institute, an Design Engineer for AusSteel,; Technical Director of JAC Tech. Centre; and Vice President and Chief Engineer of Automotive Engineering Materials Institute of Great Wall Motor. Currently Dr. Xiong is in charge of Lightweight Design Division of Geely Automotive Research Institute as a Chief Engineer. Also Dr. Xiong is honored with Professor and Ph.D. Supervisor for Hefei University of Technology, Zhejiang Automotive Engineering University, a Sen. Member of China Metal Society, The Committee member of Anhui Metal Society etc.

PRESENTATION:

APPLICATION OF LIGHT-WEIGHTING TECHNOLOGY IN GEELY AUTOMOBILE AND ITS FUTURE

ABSTRACT:

This presentation will discuss the principle and method of light-weighting design, application in Geely and case study, as well as how to make full use of this technology in a project and its future prospect.

Qiong WANG

China Technology Strategy VP
Asia R&D VP-Seating
Faurecia (China) Holding Co., Ltd.

WANG Qiong, China Technology Strategy VP, Asia R&D VP-Seating with Faurecia (China) Holding Co., Ltd. has more than 20 years Engineering experience within the matrix organization on Aircraft industry and Automotive industry; with more than 15 years as leadership position and engineering experience in global R&D matrix organization. Mr. Wang is always committed to the development of the forefront in the automotive industry, and dedicated to promote the automotive industry revolution. He has a deep understanding about the current international technology system and the way of application. Based on his unique view, he also builds an international horizon of industrial transformation for the automotive industry from the traditional manufacturing style to a fresh mode which can adapt to newest advanced industry 4.0.

PRESENTATION:

MASTERING INNOVATION THROUGH LIGHTWEIGHTING LEADERSHIP

ABSTRACT:

Faurecia is fully engaged in the energy saving and emission reduction for light vehicles and truck.

The aim of the presentation will be to show different kind of technologies related to weight reduction, energy recovery, bio-materials and pollutant management which lead the Faurecia group to propose solutions allowing around 15g CO_2 savings and significant pollution reductions to reach the future Chinese regulations.

Xinghua LAI
Deputy Director
Institute of Vehicle Lightweight Technology
Suzhou Automotive Research Institute
Tsinghua University

Dr. Xinghua Lai received his Ph.D. degree in mechanical engineering from Department of Automotive Engineering, Tsinghua University in 2012. He is deputy director of institute of vehicle lightweight technology, Suzhou Automotive Research Institute, Tsinghua University, responsible for research and development of key vehicle lightweight technologies. His research interests include vehicle lightweight and crash safety, finite element dummy modeling and advanced restraint system design, characterization of mechanical behavior of structural and material under impact loading. As a member of Society of Automotive Engineers (SAE), and American Society of Mechanical Engineers (ASME), he has published more than 25 research papers and applied for 13 Chinese invention patents, as well as been granted 14 utility model patents.

PRESENTATION:

MATERIAL CHARACTERIZATION UNDER IMPACT LOADING AND APPLICATION IN LIGHTWEIGHT AND CRASH-SAFE VEHICLE DESIGN

ABSTRACT:

Regulations upgrade and market competition drive OEM speed up research and development of emerging lightweight technologies, including new lightweight material, structure optimization, and manufacturing technique. Vehicle lightweight is not at the expense of performance goals, say crash safety, one of most challenging performance target in car development. Therefore, researches on the mechanical properties of engineering material, particularly for lightweight material, under impact loading conditions as well as simulation method at material and component levels provide key technical support for OEM in lightweight and crash-safe car design. The presentation addresses characterization of elastic-plastic and fracture behavior for different lightweight materials (high-strength steel, aluminum and magnesium alloy, plastics, and composites) through impact tests and computer simulation, and application study in full vehicle level for weight reduction while ensuring crash performance.

Bo LIU
Senior Engineer
Chongqing Chang'An Automobile Company Limited

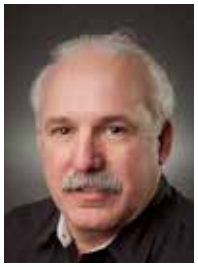
Dr. Bo Liu, is a senior engineer in Chongqing ChangAn Automobile company limited, leading tasks of vehicle lightweight research and application. He has carried out a couple of government research projects relating to car structure design and optimization, application of aluminum, magnesium alloy. He received title of "middle-aged and young scientific and technological innovation of leading talent" of innovation talent promotion plan launched by Ministry of science and technology.

PRESENTATION:

MATERIAL CHARACTERIZATION UNDER IMPACT LOADING AND APPLICATION IN LIGHTWEIGHT AND CRASH-SAFE VEHICLE DESIGN

ABSTRACT:

Regulations upgrade and market competition drive OEM speed up research and development of emerging lightweight technologies, including new lightweight material, structure optimization, and manufacturing technique. Vehicle lightweight is not at the expense of performance goals, say crash safety, one of most challenging performance target in car development. Therefore, researches on the mechanical properties of engineering material, particularly for lightweight material, under impact loading conditions as well as simulation method at material and component levels provide key technical support for OEM in lightweight and crash-safe car design. The presentation addresses characterization of elastic-plastic and fracture behavior for different lightweight materials (high-strength steel, aluminum and magnesium alloy, plastics, and composites) through impact tests and computer simulation, and application study in full vehicle level for weight reduction while ensuring crash performance.



Tim Skszek

Principal Investigator of the MMLV Program
Magna International

Tim Skszek leads the Magna International R&D Government Partnership activity in the North America. Tim is the Principal Investigator of the MMLV Program, managing the interface between the government agencies, Ford and Magna project team to realize successful project execution, providing 16% reduction in global warming potential and 16% reduction in Primary Energy relative to the 2013 Ford Fusion.

Tim holds a Master of Science Degree from University of Wisconsin in Metallurgical Engineering and is a licensed Professional Engineer. Tim is a subject matter expert in the areas of Metal Casting, Warm Forming of Al and Mg, Additive Manufacturing and Life Cycle Analysis.

PRESENTATION:

MAGNA/FORD MMLV CONCEPT VEHICLE - DESIGN AND COMPARATIVE LCA STUDY

ABSTRACT:

In response to the global automotive market changes, the US Department of Energy (DOE) co-funded Magna International and Ford Motor Company to engineer, prototype and test a new lightweight aluminum-intensive passenger vehicle, facilitating extensive use of advanced lightweight and high-strength materials. The Multi Material Lightweight Vehicle (MMLV) Mach I design achieved an overall 364 kg (23%) full vehicle mass reduction, enabling engine downsizing providing 16% reduction in Global Warming Potential and a 16% reduction in Primary Energy.

This presentation communicates the results of a comparative life cycle assessment (LCA) study of the MMLV auto in accordance with International Organization for Standardization (ISO) standards. Content includes material selection/distribution, manufacturing process selection enabling of mass-induced fuel savings due to the lightweight auto parts and the down-sized powertrain.

Hans Mikota

Head of Research and Development
Georg Fischer Automotive Business Unit

Hans Mikota is Head of Research and Development Asia of Georg Fischer Automotive Business Unit China, Suzhou. He is responsible for product development, process development as well as materials engineering for Georg Fischer Automotive in Asia.

He is a member of Georg Fischer Business Unit China management team and heads the development teams for both iron sand casting as well as aluminum and magnesium high pressure die casting. Hans Mikota received a master degree in process engineering from Mining and Metallurgy University of Leoben, Austria in 1998. Prior to working for Georg Fischer in China since 2012 he has held various positions in management and engineering for Georg Fischer Automotive in Europe, both in casting technology research as well as engineering and development of lightweight chassis components. He is a married father of 2 children and lives with his family in Suzhou.

PRESENTATION:

LIGHTWEIGHT SOLUTION FOR YOU THROUGH INNOVATION MATERIALS AND DESIGN

Christoph Stapf

Head of Marketing & Sales
Georg Fischer Automotive Business Unit China

Christoph Stapf is the Head of Marketing & Sales of Georg Fischer Automotive Business Unit China for booth iron sand casting and aluminum as well as magnesium high pressure die casting. He started to his professional career in automotive industry in 2002 as a student in an internship in Volkswagen Mexico. Christoph Stapf received a diploma in Mechanical Engineering from University of Applied Sciences in Weingarten, Germany in 2003. Prior to working in GF since 2008, he worked for Volkswagen Mexico when lived in Mexico and has two years working experience for ElringKlinger in Tokyo, Japan.

After five years worked in Georg Fischer in Switzerland as a key account manager since 2008, he was transferred to Suzhou, P.R. China to become the Head of Marketing & Sales of GF Automotive Business Unit China in the year of 2013.

PRESENTATION:

LIGHTWEIGHT SOLUTION FOR YOU THROUGH INNOVATION MATERIALS AND DESIGN

Rainer Erdmann
Managing Director Asia Operations
StrikoWestofen Thermal Equipment (Taicang) Co., Ltd.

Born 50 years ago in the capital of Berlin, married with a Spanish citizen and having three kids!His career started actually in the age of 34 as Vice President with American Standard in the US.

Followed by an assignment within the top 10 Venture Capital firms in the US being embedded partly in Russia and the Middle East for a couple of years and ended up finally in the thermal equipment industry.Prior his assignment with Strikowestofen Asia, Mr. Erdmann was the Managing Director Asia within the Swiss Meyer Burger Group. Being now in China for six years we can call him an expert for Asia.

Since he took over his position he had re-structructed Strikowestofen Asia, increased sales by 300% and took the market leader ship position away from the Japanese.He is joining his Chinese Project Director stating "We are a German blooded company in China

PRESENTATION:

PROFITS OF LIGHTWEIGHT METAL CASTINGS START IN THE MELT SHOP

ABSTRACT:

Faster than any of the other foundry centers worldwide, Chinese foundries took advantages on the aluminum melting technology provided by the StrikoWestofen Group. In just six years, StrikoMelter aluminum melting furnaces with a total yearly capacity of 1,100,000 tons molten metal have been taken to operation in China and neighbour countries-With a clear upwards trends. The foundries report that highly efficient technology is not only turning into a crucial competitive factor but is also of great benefit to the environment. The savings on the natural gas and metal losses - compared to any other technology in the market- lead to significantly reduced until cost for castings which provides these foundries a large competitive edge. Furthermore the reduction in CO2 and dust emissions is an important step towards a 'green foundry' industry. The presentation features the specifics of the StrikoWestofen technology as well as concrete calculations what additional profits foundries gain when employing the technology.

EXHIBITOR PROFILES

Exhibitror Directory text is published as submitted by exhibtiting companies

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Shangdong PGW JinJing Automotive Glass Co Ltd

Address: South BoFeng Road, High-Tech Development Zone,Zibo, ShanDong Province. PRC
http://www.pgwglass.com

BOOTH 1

Shandong PGW Jinjing Automotive Glass, PJG, is a Joint venture between Shandong Jinjing Science and Technology stock company and Pittsburgh Glass Works, PGW. The PJG plant, located in Zibo, Shandong province, is equipped to make automotive glass for the China OEM market using the latest manufacturing processes and techniques. The factory is designed to produce a wide range of cost-effective products, from the simplest tempered parts to the most complex laminated parts.

SAE International is a global association of more than 143,000 engineers and related technical experts in the aerospace, automotive and commercial-vehicle industries.

Since 1905, SAE has connected automotive, aerospace, and commercial vehicle engineers to each other and the technical resources needed to foster a life time of learning, solutions to improved vehicle technology, and the advancement of the mobility industry.

SAE International's core competencies are life-long learning and voluntary consensus standards development. SAE International's charitable arm is the SAE Foundation, which supports many programs, including A World In Motion® and the Collegiate Design Series.

SAE provides Technical Forum, Professional Development Seminar, Technical Consulting in China, and organizes Chinese delegation to attend SAE global events and exhibitions.

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