Theme of the Conference

SAFE
SYNERGETIC
SUSTAINABLE
MOBILITY TECHNOLOGIES FOR FUTURE
Introduction

• SAEINDIA in association with SAE International organized the 9th International Mobility Conference Safe Synergetic Sustainable Mobility Technologies for Future on 8th, 9th & 10th February 2016 at India Habitat Center, New Delhi, India.

• The conference focused on key technology issues relevant to mobility engineering such as Safety, Design, Information Technology, Electronics, Fuels & Environment.

• The event saw a strong national & international level participation comprising engineers, designers & scientists from OEM, component industry, R&D organizations and the student community.
Conference Highlights

- 3 Days (500+ Participants)
- 11 Keynote Presentations
- 17 Technical & 5 Student Sessions
- 69 Technical Papers & 22 Student Papers
- TOPTECH Program on “Crash Safety”
- 25 Exhibitors
- Panel Discussion
Key Highlights

400 papers received from R&D Engineers (OEM’s/Component Manufacturers)

91 papers selected for presentation by a rigorous SAE International process of review
Inaugural Address by Mr. C.V. Raman– Chairman (Organizing Committee), Mr. Rajan Katoch–Secretary(Deptt of Heavy Industries-Govt. of India), Dr. Aravind Bharadwaj – President (SAEINDIA), Mr. Arvind Balaji- President ACMA & Jt MD(Lucas TVS), Mr. S. Sandilya- Past President SIAM & Chairman (Eicher Motors), Dr. R.K. Malhotra- Sr. Vice President (SAE India)

Key points:
• Outlook for Indian Auto Industry
• Challenges of Urbanization and Sustainable Mobility, Stringent Safety Regulations & Emission Norms (BS VI by 2020)
• Need to develop technologies relevant to India
Exposition
Keynote Session

Session - 1  Chairman: Mr. Dinesh Tyagi, Director- ICAT
- Strategies on Heavy Duty on-road application: Dr. Peter Heuser, Vice-President (FEV)
- Impact of new emission legislation on future passenger car powertrains: Dr. Gunter Fraidl- Senior Vice President (AVL)
- Electric Vehicle: Mr. John Roebuck- Managing Director (Horiba India)
- Challenging the Efficient and Reliable Mobility for Real World: Mr. Yoshihiro Sakashita (Denso)
- A Fuel Cell Future for the Indian Automotive Market: Fact or Fiction: Mr. Murali Arikara- Executive Director (Essential Energy)
**Keynote Session**

**Session - 2: Chairman: Dr. Aravind Bharadwaj – President (SAEINDIA)**
- Advanced Driver Assistance Systems – Increasing Driving Safety by Utilizing Road Information: Mr. James Remfrey- Director (Continental)
- Software development of Car Multimedia, Safety & Base software: Mr. V. Srikrishnan- Vice President (Bosch India)
- Connected Vehicles: Mr. Derek De-Bono- Group Product Marketing Director (Valeo)

Mr. P. Panda, Chairman – Technical Committee, SIIMC2016 (Right), felicitating session Chairman Dr. Aravind Bharadwaj
Keynote Session

Session -3  Chairman: Mrs. Rashmi Urdhwareshe, Director - ARAI
- Automotive Lighting and Light- Signalling, Technology trends and Regulation Challenges : Mr. Geoffrey R Draper- President (GTB- Lighting)
- Advancing Safety in a Connected Mobility Environment : Dr. Joseph Kananthra (Former Associate Administrator, NHTSA- USA)
- Automotive Safety in India : Mr. Suresh Nandagopal- President (Autoliv)

Mr. I V Rao, Co-Chairman-Organizing Committee, SIIMC2016 (Left), felicitating session Chairman Mrs. Rashmi Urdhwareshe
Technical Session

Session-1 Chairman: Mr. AK Sehgal, General Manager, Indian Oil Corporation Limited
- Influence of gear web and macro geometry on mesh misalignment: Mr. Venu Ganti, General Motors
- Offset Driveline for Tractors: Mr. Navneet Chaudhari, M&M
- Cost and Weight Efficient Differential Housing for Off-Road Vehicles: Mr. Brij Mohan, M&M
- Development of Test Method to Validate Synchronizer Ring Design for Torsional Fluctuations in Manual Transmission: Mr. Maninder Pal Singh, MSIL

Session-2 Chairman: Dr. Reji Mathai, Head of Dept. – Vehicle Testing, Fuel & Emissions, IOCL(R&D Center)
- Consideration of Indian Turbans in Vehicle Design: Mr. Ashish Rawat, Maruti Suzuki India Limited
- Evaluation of Handling Characteristics of an Intercity Bus by Multi-Body Dynamic Simulations: Mr. Santosh Shankara Murthy, FCA Engineering India Private Limited
- Simulating Real World Driving: A Case Study on Delhi: Mr. Manish Kumar, Maruti Suzuki India Limited
- New Virtual Methodology for Analysis of Vehicle Cabin using 1-D Elements: Mr. Sayak Mukherjee, VE Commercial Vehicles Ltd.
Session-3 Chairman: Mr. Navid Talib, Operations Head, Honda Cars India Ltd.

- An Integrated Test Suite for Verification and Validation of Advanced Driver Assistance Systems: Mr. Sagar Kirtany, Mando Softtech India Private Ltd
- IOT: Fuel Quality and Quantity, Estimation of Fuel Adulteration and Fuel Quantity Accuracy: Mr. Vijay Patil, Hella Automotive India Ltd
- Adaptive Algorithm for Effective Traffic Management: Mr. Rahul Krishnan, Robert Bosch
- PU solutions for Low VOC and Light weight in the Automotive Industry: Mr. Deepak Joshi, BASF

Session-5 Chairman: Mr. S K Mahindroo, Vice-President, Maruti Suzuki India Ltd.

- Optimization of EGR cooler bracket weld line through combined measurement & simulation approach: Mr. Amit Chaudhari, Greaves Cotton, Ltd.
- Computation and Validation of In-cylinder Flowfield, Swirl and Flow Coefficients for a Naturally Aspirated Single Cylinder Diesel Engine: Mr. Siva Krishna Reddy, M&M Ltd
- Experimental and Numerical Study on Automotive Pleated Air Filters: Mr. Ajay Kumar Maddineni, Varroc Polymers Pvt Ltd.
- Design Analysis & Parametric Optimization of Gerotor Oil Pump for improving Volumetric Efficiency: Mr. Anurag Kamal, VECV
- Analysis of potential of Sailing Functionality in Indian driving conditions: Mr. Abhishek Bhatia, MSIL
Technical Session

Session-6 Chairman: Mr. Hemant S. Desai – VP (Business Stream Mobility), TUV Rheinland India Pvt Ltd.

- Passenger Car Water Wading Evaluation Using CFD Simulation: Mr. Mohan Makana, MSIL
- Methodology for establishing damage criteria using probability distribution function on component level tests-A case study: Mr. Ramsai Ramachandran, MSIL
- Modeling of fixed displacement swash plate compressor: A mathematical approach towards calculation of shaft torque and volumetric efficiency: Mr. Praharsh Srivastava, Subros
- Integrated Manufacturing to drive the predictive launch: Mr. Gautam Dutta, Siemens

Session-7 Chairman: Mr. Ravishankar, Executive Advisor, Ashok Leyland

- Challenges in machining Aluminium transmission gearbox housings – a structured solution approach using unconventional means: Mr. Prasad M. Rao, M & M
- Migration phenomenon in gear teeth of hypoid crown wheels (ring gears) – controlling and eliminating the same in manufacturing: Mr. Prasad M. Rao, M & M
- Research on Source of noise during adjustment of automotive seating head restraint and its Countermeasure: Mr. Nishant Kataria, MSIL
- Phenomenon of Corrosion in Chrome Plated ABS Parts: Mr. Vishad Uttam, MSIL
- Evaluation & Performance Criteria of Monofilament Yarn in Automotive Seating System: Mr. Praveen Kumar Gupta, MSIL
### Session-9 Chairman: Mr. Prasenjit Khan, General Manager, Maruti Suzuki India Ltd.

- New control strategies to avoid Pre-Ignition in Higher CR engines: Mr. Ajay Narayan Yadav, MSIL
- Numerical Study of In-Cylinder Flow Using Screw Threaded Intake Manifold in a Single Cylinder Diesel Engine: Mr. Gopal Singh Rathore, ICAT
- Estimation of temperature and velocity uniformity of exhaust gases in heavy commercial vehicle exhaust system having SCR after treatment technology: Mr. Chintamani A. Mhaskar, M&M
- Effect of Intake Charge Temp. and EGR on HCCI Engine Fuelled with Diesel and Biodiesel Blend: Mr. Akhilendra Pratap Singh, IIT-K
- Megatrend Fuel Economy: How to Optimize Viscosity with VI Improvers: Mr. Frank Lauterwasser, EVONIK, GmbH

### Session-10 Chairman: Mr. Jitendra Malhotra, DGM, Maruti Suzuki India Ltd.

- Static & Dynamic study of 4-cylinder Diesel Engine Crankshaft using FEM and Analytical approaches: Mr. Sonu Paroche, VECV Ltd
- Thermal Radiation Heat Transfer Model and its Application for Automobile Exhaust Components: Mr. Sandip Sahoo, MSIL
- Optimization of Engine Efficiency & Diesel After treatment System Architecture using an Integrated System Simulation Approach: Dr. Om Parkash Bhardwaj, FEV GmbH
- A Novel Approach for Flow Simulation and Back Pressure Prediction of Cold End Exhaust System: Mr. Manish Dixit, FCA Engg.
Technical Session

Session-11 Chairman: Mr. Vijay Deshpande, MD, Panatech Asia
- Analytical design and development of Automobile powertrain Mounts using Low-Fidelity calculators: Mr. David Neihguk, Mahindra and Mahindra Ltd.
- Improved Powertrain Mounts Position for Four Cylinder Engine Commercial Vehicle with Four Point Mounting Configuration: Mr. Kiran Balkrishna Modak, Mahindra Trucks and Bus Division

Session-13 Chairman: Mr. S K Kalia, Sr. General Manager, ICAT
- Sustainable Polyurethane composite with Coconut fiber for NVH applications: Mr. K. Krishnamoorthy, M&M Ltd.
- High Speed Booming Noise Reduction in Passenger Car By Application Of Cost Optimized NVH Solution: Mr. Vijay Antony John Britto, Renault Nissan Technical Business Centre
- Studies on Purge Noise Reduction in Vapor line using 1D Simulation: Ms. Sri Siva Sai Meduri, Quest Global Pvt. Ltd.

Mr. Navid Talib, Operations Head, Honda Cars India Ltd. (Right), felicitating session Chairman Mr. Vijay Deshpande

Mr. A K Sehgal, General Manager, Indian oil Corporation Limited felicitating session Chairman Mr. S K Kalia
Technical Session

Session-14 Chairman: Mrs. Pamela Tikku, Sr. General Manager, ICAT
- Effect of Ethanol-Gasoline blends on Combustion and Emissions of a Passenger Car Engine at Part Load Operations: Mr. AS Ramadhas, IOCL
- Reformation of Eco-Friendly Automotive Brake Pad by using Natural Fibre Composites: Mr. Arunkumar M., Renault Nissan
- Development of Real Time Mild Hybrid Simulation Model using Battery in Loop: Mr. Ram Krishan Sharma, MSIL
- Hybrid Controls Comparison on HILs using a modular soft platform: Mr. Rakshit Thukral, MSIL

Session-17 Chairman: Mr. Sajid Mubashir (Scientist-G, Department of Science and Technology)
- Method for preliminary assessment about lifetime estimation of electronic components in Hybrid and EV applications: Mr. Prashant Shinde, Robert Bosch Engg
- Design and development of all terrain hybrid vehicle for scientific expedition: Mr. Rajesh Siva, National Institute of Ocean Tech
- A Road Map for Li-ion battery charger based on charging time, Battery life & safety: Mr. Najid Ali Musaliyarakam, Robert Bosch Engg
- Functional safety in Inverter Hardware: Mr. SriRamaChandraMurthy Batchu, Robert Bosch Engg
Session-18 Chairman: Mr. Sanjay Deshpande, VP & Chief Engineer, Mahindra & Mahindra Ltd.

- Development and Validation of Mini-Channel Evaporator Model Integrated with TXV for R134a Mobile Air-Conditioning System: Mr. SasiKumar Muthusamy, Renault Nissan
- A Mathematical Model of Truck Tandem Bogie Suspension: Mr. Bibin Alias, Mercedes-Benz R&D India Pvt. Ltd.
- Optimization of state machine Architecture for Automotive body control: Ms. Sindhu Ls, Tata Motors Ltd.
- Interior noise reduction in a passenger vehicle through mode modulation of backdoor: Mr. Gaurav Kumar, MSIL
- Hydraulic Lift Arm Assembly Design for Durability and Correlation with Physical Test: Mr. Vinod Verma, M&M
Technical Session

Session-19 Chairman: Dr. Tapan Sahoo, Vice President, Maruti Suzuki India Ltd.
- Evaluation of Lanthanum Based Diesel Oxidation Catalyst for Emission Reduction with and Without Ceria Support – Mr. Pravesh Chandra Shukla, IIT Kanpur
- Evaluation of numerical modeling strategy for prediction of backpressure across various configuration of diesel engine based after treatment system – Mr. Sachin Sharma, Cummins
- Thermodynamic study of Turbocharger matching and combustion optimization for better Low end Torque and high speed Power - Mr. Surendranath Mutta, Mahindra and Mahindra

Session-20 Chairman: Mr. U D Bhangale, Senior GM , ICAT
- Dynamics of an Earthmoving Machine through Outright Articulation- Mr. Srikanta Nahak, John Deere
- Effects of Excitation Voltage on Piezoresistive and Resistive Sensor Output Characteristics- Mr. Indrakaran Reddy, MSIL
- Mathematical model for Kinematic analysis of McPherson strut suspension- Mr. Aditya Anant Patil, Tata Technologies.
- Tactile Sensor Array Design for Triple Seat Detection and Control – Mr. Eeshan Bashir, Tata Elxsi Ltd
Technical Session

Session-21 Chairman: Mr. A V Mannikar, Senior Deputy Director & Head Safety & Homologation Lab, ARAI
- Weight and cost effective FUPD design for N3 category vehicles: Mr. Ajo John, Mercedes Benz R&D India Ltd
- Design optimization of Hood System for Pedestrian Headform Protection: Mr. Kamlesh Yadav, MSIL
- Active and Passive Safety: An Overview on Establishing Safety Assessment Standards in India: Mr. Kumaraswamy Udugu, M&M
- Optimization of Bumper Beam Structure for Pedestrian Protection & Low Speed Bumper Impact: Mr. Abhishek Sinha, MSIL
- Optimization of Seatbelt Anchorage Mount Locations for Occupant Injury Reduction in Frontal Crash: Mr. Kantilal Patil, M&M

Session-22 Chairman: Mr. KK Gandhi, Director-SIAM
- In-Cylinder Air-Flow Characteristics using Tomographic PIV at different Engine Speeds, Intake Air temperatures and Intake Valve Deactivation in a Single Cylinder Optical Research Engine : Mr. Akhilendra Pratap Singh, IIT Kanpur
- An Experimental Study of Microscopic Spray Characteristics of a GDI Injector Using Phase Doppler Interferometry : Mr. Nikhil Sharma, Indian Institute of Technology
- A Performance, Combustion and Emission Study on HCCI Engine: Trends and Innovations : Mr. Madhankumar Dhandapani, Karpagam College of Engineering, Tamil Nadu
- SCR Catalyst Volume Reduction of Vanadium for BSIV Emission Norms : Mr. Sumit Arora, Eicher

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**Student Session**

**Session-4 Chairman: Dr. Madhusudan Joshi, ICAT**
- Advanced driver assistance systems - Mr. Rituraj Srivastava
- Independent Natural fibre composite energy absorber for pedestrian safety - Mr. J R Gnanaswamy, ISM Dhanbad
- Crashworthiness of circular tubes with structurally graded corrugations - Mr. Sharad Rawat, MNNIT

**Session-12 Chairman: Dr. K C Vora, Sr. Dy. Director & Head, ARAI Academy**
- Implementation of Fuzzy Logic Control in Semiactive Suspension for a Vehicle Using MATLAB SIMULINK - Mr. Shraddhesh Rasal, VIT University - ARAI Academy
- Development of Electric Kart - Mr. Hemant Pratap Singh, Gautam Buddha University
- Switching Algorithm aNd Cell DYnamics (S.A.N.DY), A Novel Approach for Optimum Discharging/Charging of a Lithium-Polymer Battery Pack for Hybrid/Electric Vehicles - Mr. Jainendra Mishra, Siddaganga Institute of Technology
- Development of a Low-Fidelity Mathematical Simulation Model of a Series HEV using MATLAB for Educational Purpose - Mr. Paramjeet Panwar, Prigma Edutech Services
- Evaluation of Handling Characteristics of an Intercity Bus by Multi-Body Dynamic Simulations - Mr. Monish M. H. Gowda, FCA Engineering India Pvt Ltd
**Student Session**

**Session-8 Chairman: Mr. D. Balakrishna, Head Regulations and Homologation activities, Ashok Leyland Ltd**

- In-cylinder combustion and emission characteristics of an agricultural diesel engine fuelled with blends of diesel and oxidatively stabilized Calophyllum methyl ester - Mr. Chinmaya Mishra, KIIT University
- Optimization of parameters for the Production of Biodiesel from Jatropha Oil - Mr. Aatmesh Jain, ARAI
- Experimental investigation to study the effect of properties of Coconut oil bio-diesel and Castor oil bio-diesel and its blending with diesel on the performance in a CI engine - Mr. Prabhu Chelladurai, SRM University
- Effect of different fuels on the unburned HC emission from SI engine: A theoretical study – Ms. Garima Kushwaha, MNNIT Allahabad
- Vehicle Design, Battery Design and Distribution Model to implement battery swapping in Battery Electric Vehicles, by drawing parallels with the Indian LPG-distribution network which has effectively implemented cylinder-swapping methodology - Mr. Aditya Rai, SRM University
Session-15 Chairman: Prof. Anoop Chawla, Professor, IIT Delhi
• Downsizing of a Constant Mesh Gearbox by Introducing Power Flow Technique with an Electro-Hydraulic Control System: Mr. Ganesh Mishra, GARC Academy
• Investigations on the effect of Piston Squish Area on Performance and Emission Characteristics of LPG fuelled Lean Burn SI Engine: Mr. Ravi Krishnaiah, VIT University, Vellore
• Cooling System Optimization of a Multi-Point Fuel Injection: Mr. M A Vadivelu, VIT University
• Estimation of Performance Characteristics of a Split Cycle Based SI Engine: Mr. Ananthesha, M.S.R.U.A.S

Session-16 Chairman: Prof. S. Maji, Principal (G.B. Pant Engg College) & Director (Delhi Institute of Tool Engineering)
• Anti-Pinch mechanism for power window: Mr. Nithin Alex John, ARAI Academy
• Optimizing and Validating the Engine and Emission Parameters through 1D simulation: Mr. Vinayak Jadhav, ARAI Academy
• Optimization of Engine variables for Low Emissions on Diesel Engine: Mr. Praveer Jain, ARAI Academy
• Effect of Tie Rod Length Variation on Bump Steer: Mr. Monish, M.S.R. University
TopTech

TOPTECH Program on Crash Safety conducted by Dr. Joseph Kanianthra, Former Associate Administrator, NHTSA-USA
Panel Discussion

**Discussion Topic:** CLEAN AIR 2030

Panelists: (Left → Right)
1) Mr. C V Raman, Executive Director (MSIL)
2) Dr. Mukesh Sharma (IIT Kanpur)
3) Dr. Ajay Mathur (TERI)

Session Moderator: Mr. Hormazd Sorabjee, Editor (AUTOCAR)
4) Mr. Friedrich Boecking, MD (Bosch India)
5) Dr. Gunter Fraidl - Senior Vice President (AVL)
Cultural Event
Thank You very much...

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