

REPORT

Program Name : *International Conference on Advances in Design, Materials, Manufacturing and Surface Engineering for Mobility*

Date : *19th to 21st July 2017*

Venue : *B.S. Abdur Rahman Crescent University*

DAY 1

The conference was started with the Pre conference Workshop on July 19, 2017 on Model Based Systems Engineering in Automotive Applications by Murugadass Kannan, Siemens in the forenoon session. He focused on the Euro emission norms and standards for the automotive industry and how simulation can help in reducing the time and cost which the industry requires. The program was well received by the participants and the participants requested to organize 2-3 day workshop on simulation software. In the afternoon, the participants visited MRV (Mahindra Research Valley) and they were able to connect the applications in real life situations.

DAY 2

In the Inaugural function on July 20, 2017, Dr.S. Rasool Mohideen, Dean –School of Mechanical Science, B.S. Abdur Rahman Crescent University, Chennai delivered the welcome address. Dr. Aravind S Bharadwaj, Chief Technical Officer Mahindra & Mahindra, Chennai inaugurated the conference on July 20, 2017 and delivered the inaugural address on Light weight mobility



Mr.N. Balasubramanian from Renault Nissan, the conference chair SAEINDIA highlighted the launch of the conference during SAE International President Visit in Oct 2016. He appreciated the university in organizing this conference in alignment with the SAEINDIA Centre for Automotive Excellence in Surface Engineering at BSA University.

Mr.S.Sriraman Senior Vice President TAFE- Chairman SAEINDIA Southern Section felicitated the event. Dr. R. Rajendran, Professor of B.S. Abdur Rahman Crescent University Chennai and Organising Secretary-ADMMS 2017 proposed the vote of thanks.



We have received 151 abstracts out of which 138 has been shortlisted. 93 papers have been received under design, materials, manufacturing and surface engineering and 52 papers has been selected for presentation. We plan to have 6 invited lectures and 9 technical sessions for the conference.

Technical oral presentation with 3 parallel sessions in the areas of Product Design, Modelling and Simulation, New Metal and Alloys followed the inauguration. The session chair/co-chair and evaluators were from industries like Mahindra and Mahindra, FIAT Chrysler, Ashok Leyland and from reputed institutions like IIT, MIT. They appreciated the technical content and quality of the papers. 12 papers were presented in total in all the 3 sessions from M & M, CVRDE, UCAL Fuel systems, COMSTAR, VE Commercial vehicles, SRM and VIT University.

Technical Sessions	
Technical Session 1: Product Design – Engines (Seminar Hall I- Convention Centre)	
Session Chair: Dr.Devaradjane, Anna University, Chennai	
Session Co -Chair: Dr N Saravanan, Mahindra & Mahindra Ltd, Chennai	
Evaluator: Dr. R. Sathish Kumar, BSACU	
1	Performance Modification of Three Cylinder Diesel Engine Ge-Rotor Oil Pump through Rotor and PRV system (2017-28-1934) Thakur Anil, Mahindra & Mahindra Ltd
2	Active Muffler for Single cylinder engine, using Electronic Throttle Control for Formula student Cars (2017-28-1935) V V Praveen, SRM University
3	A Simple and Cost Effective Electronic Fuel Injection System for Reactivity Controlled Compression Ignition (RCCI) Engines 2017-28-1940 Sankaralingam Ram Kishore, VIT University
4	Methodological Approach for Converting Conventional Powertrain Platform into an Electrified One. 2017-28-1943 Jaswal Anil Kumar, Mahindra & Mahindra Ltd



Technical Session 2: Modeling & Analysis (Seminar Hall II -Convention Centre)	
Session Chair: Dr. N. Kulasekharan, Fiat Chrysler Automobiles, Chennai	
Session Co -Chair: Mr.Dev Anand, Sathyam Ventures	
Evaluator: Dr. Anand Gurupatham, RNTBCI	
1	Weight Optimization of Fork and Axle of Main Landing Gear for an Unmanned Aerial Vehicle by Finite Element Analysis (2017-28-1949) Johnson Jose, CVRDE
2	Experimental and Numerical study on the Effect of Valve Angle of EGR on Exhaust Gas Flow (2017-28-1950) J Suresh Kumar, UCAL Fuel Systems, Ltd.
3	Quantitative Evaluation of Steering System Rattle Noise 2017-28-1952 Utkarsh Sharma, Mahindra & Mahindra Ltd



Technical Session 3: New Metals and Alloys (Seminar Hall III- Convention Centre)

Session Chair: Mr.S.Srinivasan, Ashok Leyland, Chennai

Session Co -Chair: Dr.Krishna Ashok Leyland Ltd, Mr V. P. Balaji WABCO.

Evaluator: Dr.Krishna Koorella, Ashok Leyland

1	<p>Starter Motor Light weighting through use of Alternate Materials 2017-28-1967 Senthil Ram N D, Comstar Automotive Technology Pvt, Ltd.</p>
2	<p>Vibration analysis on magnesium alloy housing and analysis of resonant frequency on the housing between magnesium and aluminium alloy 2017-28-1969 Senthil Ram N D, Comstar Automotive Technology Pvt, Ltd.</p>
3	<p>Enhancing the Tribochemical characteristics of chemically modified jojoba oil with the addition of carbon based nanoparticle in Engine oil for Engine lubrication (2017-28-1971) Thirumalai kannan Kandaswamy, Assistant Professor / Mech, REC</p>
4	<p>Influence of Nano TiO₂ particles on properties and behaviour of A356 2017-28-1986 Dinesh Paulraj, B S Abdur Rahman Crescent University</p>



Plenary Sessions (Seminar Hall I- Convention Centre)

1	PL 1: Materials Mr.P.Suresh, RNTBCI
2	PL 2: BS4 Mr. Krishnan Sadagopan, Vice President, Ashok Leyland, Chennai

In the afternoon we had 2 plenary sessions Mr.P.Suresh, General Manager, RNTBCI delivered talk on BIW a Competition between Materials and Dr.N.Saravanan, M & M on Engine Emissions.

**Technical Session 4: Product Design – General (Seminar Hall I- Convention Centre)**

Session Chair: Mr. Mohansundar, WABCO

Session Co -Chair: Dr. P. Navaneethakrishnan, Kongu Engineering CollegePerundurai

Evaluator: Mr.V.Praveen kumar, WABCO

1	Vehicle Interior Space Optimization Through Occupant Seating Layout Apportioning (2017-28-1923) Satish Mudavath, Mahindra & Mahindra Ltd
2	Novel, Compact and lightweight plenum assembly for automobiles 2017-28-1924 Praveen Kumar, Mahindra & Mahindra Ltd
3	DMADV Approach for Design Optimization and Quality – Application and Adaptability In Indian Automobile Industry 2017-28-1930 Anil Kumar Jaswal, Mahindra & Mahindra Ltd
4	Front Loading In-Vehicle Traffic light Visibility requirements for Driver as per Indian Road Standards (2017-28-1932) Ganesh Dharmar, Mahindra & Mahindra Ltd
5	Multi-objective optimization of two stage spur gearbox using NSGA-II 2017-28-1939 Maruti Patil, Indian Institute of Technology



Technical Session 5: Modeling & Analysis (Seminar Hall II- Convention Centre)

Session Chair: Mr. T.Sukumar, WABCO

Session Co -Chair: Mr. Rizvi Mohammed, Mahindra & Mahindra Ltd, G. Senthil Kumar, Ashok Leyland

Evaluator: Mr. N. Umashankar, , Ashok Leyland, Chennai

1	Design, Analysis and Prototype Development of All Terrain Hybrid-Vehicle for Scientific Expedition (2017-28-1938) Manivannan Shyam Sunder, National Institute of Ocean Technology
2	Parametrical and Tribological Investigation of Ring Parameters Using Ring Dynamics Simulation for Blow-by, LOC and Friction Reduction (2017-28-1954) Premkumarr Santhanamm, India Pistons Ltd.
3	Methodology to quantitatively evaluate the secondary ride characteristics of a vehicle (2017-28-1959) Abhishek Taluja, Mahindra & Mahindra Ltd
4	Front Loading of Foot Swing Envelop during egress to Vehicle Architecture (2017-28-1960) Satish Chandra Mudavath, Mahindra & Mahindra Ltd



Technical Session 6: Friction and Wear / Corrosion and Surface Treatments (Hall III- Convention Centre)

Session Chair: Dr.T.Sundararajan, Head R & D Wheels India

Session Co -Chair: Mr. Villuri Satyanarayana, Lead Engineer , Mahindra & Mahindra Ltd

Evaluator: Mr. A. Venugopal, WABCO

1	Theoretical Wear Rate Prediction and Experimental Validation of Repeatedly Operated Solenoid Valve (2017-28-1973)
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	Sakthivel B, UCAL Fuel Systems, Ltd.
2	Combined Spatter and Immersion Type Oil Cooling System in Tractors with Multi Disc Wet Clutch (2017-28-1976) Suresh Kumar N, Tractors and Farms Equipments, Ltd. (TAFE)
3	Ni-P Composite Plating on Piston ring for improved wear performance 2017-28-1977 M Malathi, IP Rings Ltd
4	Experimental Study on the Effect of Thermal Barrier Coating on Cylinder Head of a Semi-Adiabatic Diesel Engine (2017-28-1978) Stanley M Jerome, SRM University
5	Experimental Analysis of Performance and Emission Characteristics of Tungsten Carbide Coated Piston (2017-28-1981) Sakthinathan Ganapathy, Anna University



Plenary Session (Seminar Hall I- Convention Centre)

09:00 to 09:45	PL 3: Suspension Dr. U Solomon, Scientist G, CVRDE, Avadi, Chennai
09:45 to 10:30	PL 4: Design of Materials Dr. Ahmad Mujahid bin Ahmad Zaidi, National Defence University, Malaysia



In the evening we had 3 parallel technical sessions in the Product Design, Modelling and Simulation, Friction, wear and corrosion and surface treatments. The session chair/co-chair and evaluators were from industries like WABCO, FORD, Wheels India and from research organizations like IGCAR. 15 papers were presented in total in all the 3 sessions from TAFE, IP Rings Ltd, NIOT, India Pistons Ltd, IIT and Anna University.

In the closing session we had panel discussion on light weight mobility headed by Dr. Venugopal Shankar VP & DEAN MTA, Mahindra & Mahindra Ltd

With panels speakers

Dr. A. Rajadurai, Professor and Dean, MIT, Anna University

Mr. V. Sriram, Engineering Manager - Model Based Systems Engineering, Siemens PLM

Dr. Subramani Sellamani, Dy. General Manager, CAE Modelling Automation, RNTBCI

Mr. Sushil S Mane, Director – Technical Support- Altair

The discussion was fruitful to the automotive community as it was in wide perspectives based on design, materials and manufacturing aspects.

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Day 3

July 21, 2017 started with 2 plenary sessions Design and Development of Hydro gas suspension by Dr.U.Solomon Scientist G from CVRDE, Avadi followed by Prof Dato' Dr Ahmad Mujahid Ahmad Zaidi National Defence University of Malaysia on Application of Modeling and Simulation for Engineering Problems.

Technical Session 7 & 9: Product Design – NVH & Composite Materials (Seminar Hall I- Convention Centre)

Session Chair: Mr.G.Senthil Kumar, TAFE

Session Co -Chair: Mr Rahul Lalwani, Mahindra & Mahindra Ltd

Evaluator: Mr. Francis Augustine Joseph, Saintgits College of Engineering

1	Analysis and elimination of howling noise in compact utility vehicle 2017-28-1922 S Nataraja Moorthy, Mahindra & Mahindra Ltd
2	Noise Reduction on Agricultural Tractor by Sheet Metal Optimization 2017-28-1925 Asif Basha Shaik Mohammad, Tractors & Farm Equipment Ltd (TAFE)
3	Reduction of Driveline Boom and Vibration of 40 seat Busthrough Structural Optimization (2017-28-1926) Jos Frank, Mahindra & Mahindra, Ltd.
4	A Systematic Approach towards Engine Mounting system Vibration Isolation Performance Validation in Commercial Vehicles 2017-28-1928 Rajesh Babu Channamaneni, Ashok Leyland, Ltd.
5	Noise source identification and exterior noise reduction of a commercial vehicle (2017-28-1936) Prasad Padavala, Ashok Leyland Technical Center

6	Structure Borne Noise Optimization of Diesel Engine by Simulation 2017-28-1944 Asif Basha Shaik Mohammad, Tractors & Farm Equipment Ltd (TAFE)
7	Taguchi Based Analysis on Hole Diameter Accuracy of Drilled Glass/Bahunia Racemosa Fiber Polymer Composites 2017-28-1983 J Ronald Aseer, Galgotias University
8	Studies on Carbon Fiber Reinforced Aluminum Based Composites 2017-28-1984 Naveed Hussain, Lecturer Ibri College of Technology Oman

Technical Session 8 & 9 : Manufacturing Processes & Composite Materials (Seminar Hall II- Convention Centre)

Session Chair: Mr.G.S.Shankar, CATERPILLAR,

Session Co -Chair: Mr.V.Ravindran, TAFE, Chennai

Evaluator: N. Suresh Kumar, TAFE

1	Construction of a low cost cutting tool dynamometer and static calibration for measuring cutting force in a CNC milling machine (2017-28-1931) Shaul Hameed Syed, B S Abdur Rahman Crescent University
2	Effect of cryogenic treatment of copper electrode on Electro-Discharge Machining (2017-28-1962) Pervaz Ahmed Mouda, B S Abdur Rahman University
3	3D Printing technique, an effective solution for robust and reliable engineering of trims (2017-28-1966) Praveen Kumar, Mahindra & Mahindra Ltd
4	Implementation of Lean Approaches in Proto Body Build to Improve Productivity and Flexibility (2017-28-1965) Selvam G., Mahindra & Mahindra Ltd
5	Fabrication and Experimental Analysis of Epoxy-Glass Fiber Composite Leaf Spring (2017-28-1985) Hemasunder Banka, Jayamukhi Institute of Technological Science
6	Extraction and characterization of microfibers obtained from banana waste 2017-28-1987 Vigneshwaran K, Rajalakshmi Engineering College
7	Studies of Wear Behaviour of POM/Graphite and POM/MoS ₂ Composites 2017-28-1988 G Ramanjaneyulu, B S Abdur Rahman Crescent University



We had 3 parallel technical sessions in the Product Design, Manufacturing, Composite Materials. The session chair/co-chair and evaluators were from industries like Caterpillar, TAFE, BIMITE and from Central University of Tamilnadu. 14 papers were presented in total in all the 3 sessions from TAFE, Ashok Leyland technical Center, M & M.

We had plenary session on Recent Advances in Application of Laser Based Surface Treatment Processes in Automotive Sector Dr.S.M.Shariff, Scientist E, ARCI, and Hyderabad.



Dr. P. Sivakumar Director, C.V.R.D.E Avadi was the chief guest for the valedictory program. He delivered the valedictory address on new technologies used in Battle field tanker. Mr. D. Ganesh, Lead Engineer, Mahindra & Mahindra, Conference Champion SAEISS proposed the vote of thanks.

Prepared by: V.Murali (Program Executive Trainee)