



PMC2016 – Conference Programme



Wednesday September 7th - 8:15 – 8:45 – Registration
Burleigh Court, Loughborough University

9:00 – 9:15
AVON Room, Burleigh Court


Professor Kambiz Ebrahimi
PMC2016 Chair
“Conference Programme”

<p>9:15 – 9:30 Professor Steve Rothberg Pro Vice-Chancellor (Research), Loughborough University Professor of Vibration Engineering</p> <p>“Welcome and Introduction to Loughborough University”</p>		
<p>9:30 – 10:15 Keynote speech 1 Professor Mark Ehsani Robert M. Kennedy Endowed Chair Professor of Electrical Engineering Electrical and Computer Engineering, Texas A&M University</p> <p>“Engineering and Socio-Economic Aspects of Sustainable Energy and Transportation”</p>		
<p>Session 1A 10:15 to 11:15 AVON room</p>	<p>Session 1B 10:15 to 11:15 Malcolm Brown room</p>	
<p>(P15/N58) Multi-Body Engine Simulation Including Elastohydrodynamic Lubrication For Non-Conformal Conjunctions</p> <p style="text-align: center;">M. Meuter, G. Offner, G. Hasse</p>	<p>(P4/N2) Diesel engine torque prediction using static neural networks.</p> <p style="text-align: center;">C. Moseley, P. Paoletti, T. Shenton, B. Neaves, G. Shankar Sukum</p>	
<p>(P12/N31) Elastodynamics of Piston Compression Rings</p> <p style="text-align: center;">R. Turnbull, S.R. Bewsher, M. Mohammadpour, R. Rahmani, H. Rahnejat, G. Offner</p>	<p>(P6/N4) Multiple Model Predictive Control for Diesel Engines with Dual Loop Exhaust Gas Recirculation.</p> <p style="text-align: center;">G. Lu, Y. Zhang, H. Xu, Z. Li, B. Neaves</p>	
<p>(P20/N7) Balancing driveability, NVH and fuel consumption - The magic triangle</p> <p style="text-align: center;">H. Stoffels</p>	<p>(P31/N6) Model-based Real-time Systems Engineering.</p> <p style="text-align: center;">A. Darlington A. Renna, M. Dempsey, A. Picarelli, M. Farid, S. Gallagher, R.Gillot, X. Han</p>	
<p>11:15 to 11:30 Coffee</p>		



Wednesday September 7th	
Session 2A 11:30 to 12:30 AVON room	Session 2B 11:30 to 12:30 Malcolm Brown room
(P58/N29) Simulation of the tribological conditions of hypoid gear pairs by crossed helical gears. E. Athanasopoulos, C. Salpistis, M. Mohammadpour, A. Mihailidis, S. Theodossiades, H. Ranejat	(P43/N8) New Approach to Optimize Parameters in Complex Physical ECU- and XiL Models T. Kruse, T. Huber, H. Kleinegraeber
(P54/N35) Effect of Lubricant Rheology on Hypoid Gear Pair Efficiency. L. Paouris, S. Theodossiades, R. Rahmani, H. Rahnejat, G. Hunt, W. Barton	(P5/N10) Tuning of a parametric diesel air-path model for use in the optimisation of test signals for system identification of diesel engines. C. Moseley, P. Paoletti, T. Shenton, B. Neaves, G. Shankar Sukum
(P39/N23) Effect of Tooth Microgeometry Profile Modification on the Efficiency of Planetary Hub Gears. Fatourehchi, M. Mohammadpour, P. King, H. Rahnejat, G. Trimmer, B. Womersley, Williams, A	(P14/N12) Investigations of Cooled Low Pressure (LP) EGR on a 3-Cylinder Gasoline Turbocharged Direct Injection (GTDI) Engine. S. Petrovic, C. Vigild, J. Groeger, K. Grieser, A. Kuske
12:30 to 13:45 Lunch	
<p>13:45 to 14:30 Keynote speech 2 Professor Anna Stefanopoulou Director, Automotive Research Center, University of Michigan, Ann Arbor</p> <p>"Opportunities for Engine Control using Preview"</p>	
	
Session 3A 14:30 to 15:30 AVON room	Session 3B 14:30 to 15:30 Malcolm Brown room
(P21/N9) Concept selection for clutch nonlinear absorber using PUGH matrix. A. Haris, E. Motato, M. MohammadPour, S. Theodossiades, H. Rahnejat, P. Kelly, M. O'Mahony, B. Struve.	(P52/N54) Dynamic Calibration by Combined Feedforward-Feedback Optimal Behavioural Synthesis. A. T. Shenton
(P26/N11) Comparison of analytical and multibody dynamic approaches in the study of a V6 engine piston. M. Cavalli, G. Lavacchielli, R. Tonelli, G. Nicoletto, E. Riva	(P60/N56) Adaptive transient engine air charge estimation using a mass state observer. P. Schaal, B. Mason, K. Ebrahimi, M. Cary
(P32/N15) Nonlinear energy harvesting from base excitation in automotive applications. J. St-John, P. Alevras, S. Theodossiades, H. Rahnejat, P. Kelly	(P45/N52) Estimation of Intake Manifold Pressure using Linear Parameter Varying Models. A. Shahzad, B. Mason, M. Cary, M. Ghomashi and K. M. Ebrahimi
15:30 to 15:45 Coffee	





Wednesday September 7th	
Session 4A 15:45 to 16:45 AVON room	Session 4B 15:45 to 16:45 Malcolm Brown room
(P41/N25) Bond Graph Analysis and Optimal Control of Hybrid Dual Clutch Transmission Shift Process V. Ranogajec, J. Deur	(P62/N14) Gas Turbine Drives for Heavy Vehicles. E. Megdadi, R. Whalley
(P23/N51) Optimisation of Vehicle Transmission and Shifting Strategy for Minimum Fuel Consumption under EU and US Legislated Drive Cycles. C. J. Oglieve, M. Mohammadpour, H. Rahnejat	(P40/N47) Radial Turbine Expander Design for Organic Rankine Cycle Waste Heat Recovery in High Efficiency, Off-Highway Vehicles. A.Karvountzis-Kontakiotis, F. Alshammari, A. Pesiridis.
(P38/N48) Development of a novel test setup for validation of virtual sensing on mechatronic drivetrains B. Forrier, R. Boonen, W. Desmet	(P25/N20) Torque Vectoring Effect of Dual Continuously Variable Transmission Systems. I.M. Chen, T. Liu and T. H. Yang
16:45 , Finish and Support for visitors (as required)	
19:00 to 21:00 Drinks reception on board a steam train at the Great Central Railway	
	



Thursday September 8th - 8:30 – 9:00 – Registration Burleigh Court, Loughborough University	
Session 5A 9:00 – 10:20 AVON room	Session 5B 9:00 – 10:20 Malcolm Brown room
(P18/N5) Efficient geometric treatment of supply areas in elasto-hydrodynamic radial slider bearing simulation. M. Windisch, G. Offner	(P22/N18) A study into different cell-level cooling strategies for cylindrical lithium-ion cells in automotive applications. D. Worwood, J. Marco, D. Greenwood, R. McGlen, R.Algoo.
(P47/N49) A combined numerical and experimental investigation of disengaged wet brake plate power loss. M. Leighton, N. Morris, R. Rahmani , G. Trimmer, P. King , H. Rahnejat	(P29/N24) A modular and dynamic quasi-2d model approach to polymer electrolyte membrane fuel cells. D. Zielinski, M. Antoni, S. Jakubek, C. Kuegele.
(P10/N45) Friction measurements of a piston-ring pack using strain gauges during cold start-up of a motorbike engine A.Zavos, P. G. Nikolakopoulos	(P28/N22) Electric vehicle battery management algorithm development using a HIL simulator incorporating three-phase machines and power electronics. A. Fotouhi, K. Propp, L. Samaranayake, D. J. Auger, S. Longo
(P16/N3) Thermal Analysis of Hydrodynamic Lubricated Journal Bearings in Internal Combustion Engines N. Lorenz, G. Offner, O. Knaus	(P51/N28) Electro-Thermal Mapping of Air-cooled Open-Cathode Fuel Cells: Smart Reduction of the Number of Experiments. Q. Meyer, H-M. Koegeler, C. Kuegele, P. Shearing, D. J.L. Brett
10:20 to 10:40 Coffee	
Session 6A 10:40 -12:00 AVON room	Session 6A 10:40 -12:00 Malcolm Brown room
(P36/N21) Design of high-ratio high-efficiency high-power planetary gear transmission topologies. C. Spitas N. Fokas, S. Tsolakis, V. Spitas	(P48/N34) Model-based Comparison of Hybrid Propulsion Systems for Diesel Multiple Units. S. Schmid, K. Ebrahimi, W. Commerell
(P13/N33) Dynamic and Tribological Study of a Planetary Gearbox with Backlash and Gear Meshing Non-linearity. K. Salagianni, P. Nikolakopoulos, M. Mohammadpour and S. Theodossiades	(P49/N36) Evaluation of mean value engine air mass model during transient operation. M. Ghomashi, B. Mason, K. Ebrahimi, M. Cary
(P35/N19) Multi-parametric design implementation of ultra-high pressure angle gear transmissions. C. Spitas, A. Amani, N. Focas, S. Tsolakis, V. Spitas	Altitude Simulation S. Bender
(P1/N37) Tribological Investigation of Truncated Thermo-Elastohydrodynamic Elliptical Point Contacts in High Performance Transmissions V. Elisaus, E. Fatourehchi, M. Mohammadpour, S. Theodossiades, H. Rahnejat	(P8/N16) Effects of Dual Loop EGR on Emission and Performance of a Diesel Engine in Transient Conditions. Y. Zhang, G. Lu, H. Xu, Q. Zhou, Z. Li



Thursday September 8 th	
<p>12:00 – 12:45 Keynote speech 3 Dr Andreas Schamel Director Global Powertrain Research & Advanced Director Ford Aachen Research & Innovation Center (RIC)</p>	
<p>12:45 to 13:45 Lunch</p>	
<p>Session 7A 13:45 to 14:45 AVON room</p>	<p>Session 7B 13:45 to 14:45 Malcolm Brown room</p>
<p>(P33/N17) Structural Analysis and Topology Optimisation of an Aftercooler Cover for Weight Reduction in Off-Highway Engine Application. T. Murton, R. Rahmani, J. Crew</p>	<p>(P46/N43) A Numerical Study of Intake Valve Jet Flapping in a GDI Engine. N. J. Beavis, S.S. Ibrahim, W. Malalasekera</p>
<p>(P53/N30) Design optimization and additive manufacture for lightweight automotive components. M. Abdi, I. Ashcroft, R. Wildman</p>	<p>(P24/N41) Simulation of a cooling fluid conditioning system for combustion engines using Simscape. P. Höhn, J. Widdershoven, P. Stommel</p>
<p>(P57/N32) Numerical Analysis of Failure Mechanisms of pCBN Cutting Tool J. Fletcher E. Demirci V. Silberschmidt</p>	<p>(P9/N39) The Effects of Transient Over-fuelling on Heavy Knock in an Optical Spark Ignition (SI) Engine. H. Vafamehr, A. Cairns</p>
<p>14:45 to 15:00 Coffee</p>	
<p>15:00 to 15:45 Keynote speech 4 Professor Rolf Isermann Professor emeritus at the Institute of Automatic Control, Head of the Laboratory for Control Engineering and Process Automation, Darmstadt University of Technology, "Model-based optimisation of combustion-engine control for different driving cycles"</p>	



Thursday September 8th	
Session 8a 15:45 to 16:45 AVON room	Session 8b 15:45 to 16:45 Malcolm Brown room
(P42/N27) Analysis of Lubricated Contact in Continuously Variable Transmissions (CVT) I. Medina Huerta, M. Mohammadpour, H. Rahnejat	(P34/N46) Powertrain Modelling and Engine Start Control of Construction Machines. T.Q. Dinh, J. Marco, D. Greenwood, L. Harper D. Corrochano
(P30/N13) Clutch lining frictional characteristics under thermal tribodynamic conditions. E. Humphrey, T. Gkinis, N. Morris, M. Leighton, R. Rahmani H. Rahnejat	(P56/N26) Predictive control of commercial e-vehicle using a priori route information. P. Steinbauer, J. Husák, F. Pasteur, P. Denk, J. Macek, Z. Šika,
(P61/N55) Influence of clutch lining frictional characteristics upon cold and hot take-up judder. Th. Gkinis, R. Rahmani and H. Rahnejat	Experience in the delivery of graduate level education for powertrain calibration engineers”. R. Stobart, A. Malalasekera, S. Thomas
17:00 , Finish and Support for visitors (as required)	
19:00 to 22:00 Conference Dinner, Prestwold Hall, Loughborough.	



Friday September 9th - 8:30 – 9:00 – Registration
Burleigh Court, Loughborough University

9:00 to 9:30
Keynote speech 5



Chris May

Mike Woodcock

Advanced Propulsion Centre

“Growing and Sustaining Low Carbon Powertrain Research-to-Manufacture Capabilities in the UK”

Session 9 9:30 – 10:10

AVON room

(P27/N40) Low-dimensional model for multiple after-treatment devices

C. Ting Lao, J. Akroyd, A. Bhave, M. Kraft

(P44/N57) A Classification Concept for Optimisation of Powertrain Product Development Productivity.

A. Ciriello, R. Osborne, W. Graupner, A. Pezouvanis, K. Ebrahimi

10:10 to 10:30 Coffee

Session 10 10:30 – 11:30

AVON room

(P19/N42) A study of “off-cycle” emissions from a Euro 6 GDI vehicle

M. Peckham, B. Campbell, A. Finch, J. Dunnett

(P50/N50) Linearization of a nonlinear intake manifold model using Linear Parameter Varying models.

M. Ghomashi, B. Mason, K. Ebrahimi, M. Cary, A. Shazad

(P63/N59) Waste Heat Energy Recovery using Thermo-Electro Generation

E. Tsaliagkou, L. Ellerton, P. Hudson, C. Woodhead

11:30 to 12:30 Lunch

12:30-15:30 - Tour of Facilities of Loughborough University Powertrain Group

15:30 to 15:45 Coffee

15:45 – 16:15

AVON Room, Burleigh Court

Professor Kambiz Ebrahimi

PMC2016 Chair

“Conclusion”