# International Conference on Automotive and Electronics Technologies 2014

Automotive Simulation World Congress 2014 and ANSYS Electronics Simulation EXPO 2014

Tokyo, Japan 9 - 10 October 2014

ISBN: 978-1-5108-4103-1

Printed from e-media with permission by:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2014) by ANSYS Inc. All rights reserved.

Printed by Curran Associates, Inc. (2017)

For permission requests, please contact ANSYS Inc. at the address below.

ANSYS Inc. Southpointe 2600 ANSYS Drive Canonsburg, PA 15317 USA

Phone: 844.Go.ANSYS 844.462.6797 Fax: 724.514.9494

www.ansys.com

### Additional copies of this publication are available from:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571 USA Phone: 845-758-0400 Fax: 845-758-2633 Email: curran@proceedings.com Web: www.proceedings.com



Ke	ynote		<b>Interpreter Session</b>			
Octo	October 9, 2014 - Thursday -morning-			October 10, 2014 - Friday -morning-		
		Electronics Simulation Expo		ANSYS Electronics Simulation Expo		
	Automotive Simulation Wo	orld Congress		Automotive Simulation World Congress		
9:30   9:50	1K-1	$\mathbf{\hat{o}}$	0.20	2К-1		
	Welcome Address N/A			Welcome and Updates of yesterday		
	Gianmaria Bruni Ferrari AF Corse Team, Italy 2013 World Champion of the WEC C	hampionship		Dr. Sandeep Sovani and Sudhir Sharma		
	Automotive Simulation World Congress	ANSYS Electronics Simulation Expo	9:30   10:40	ANSYS, USA N/A		
	1K-A2	1К-В2		ANSYS Systems Solutions for Innovative Automotive Systems		
	Welcome and Introduction	Welcome and Introduction		Eric Bantegnie		
10:00   10:50	Dr. Sandeep Sovani ANSYS, Inc N/A	Sudhir Sharma ANSYS, Inc N/A		Esterel Technologies N/A		
	Towards a Predictive and Comprehensive Engine Simulation Methodology	Computational Electromagnetics Has Changed My Life		2K-2		
	Dr. Dirk Linse BMW Group, Germany 1	Dr. Zoltan Cendes Life Fellow, USA N/A	11:00			
	1K-3	$\mathbf{O}$		Shoichi Sasaki Limited Liability Company SASAKI Motor Technology Research Institute N/A		
	CAE utilization and promotion in		12:20	Institute N/A		
11:00   12:20	Dr. Shigeru Akaike DENSO CORPORATION, Japan	15		Automotive industry transformation from simulation, to device evolution, to the datacenter		
	Addressing Complexity with Cor	nprehensive Simulation				
	Dr. Swaminathan Subbiah ANSYS, Inc 27			Frank Soqui Intel Corporation USA N/A		
12:20   13:30	Lu	nch	12:20   13:30	Lunch		

## **Guest speaker**



Gianmaria Bruni Ferrari AF Corse Team, Italy 2013 World Champion of the WEC Championship



Dr. Dirk Linse BMW Group, Germany Development Engineer, "Simulation Combustion"

Eric Bantegnie Esterel Technologies President & CEO



Dr. Shigeru Akaike DENSO Japan



CORPORATION,

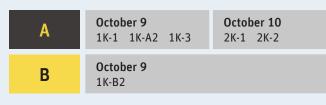


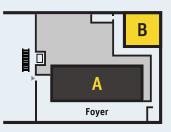
Cendes Life Fellow

Frank Soqui Intel Corporation, USA General Manager, Technical Compute Group

## **Rooms for Keynote sessions**

Please find the room for each Keynote session.





ANSYS Electronics Simulation Expo

	Automotive Simulation World Congress						
	Red Powertrain	Blue Aerodynamics, Underhood	Purple Body, Chassis, Interior	Green Motors & Power Electronics	Yellow RF, Microwave, & Communications	Orange IC Power and Reliability	
13:30   14:00	1A-1 Aeroacoustics modeling of Fan N/A	1B-1 Prediction of Narrow- band noise using LES N/A	1C-1 Breakthrough in Brake NVH and Wear Simulation N/A	1D-1 New Electromagnetic- Thermal Coupled Analyses for Electrical Machine Design 168	1E-1 Practice of IEC standards, IC-EMC modeling method and measuring method (Activities of the JEITA Semiconductor EMC Subcommittee) N/A	1F-1 Advancing Chip- Package-System Convergence through a Comprehensive RTL to Silicon Methodology N/A	
	Himanshu Agrawal Cummins Research and Technology India Ltd. Pune	Katsutomo Kanai Honda R&D Co., Ltd. Automobile R&D Center, Japan	Vinay Carpenter ANSYS India	Dr. Marius Rosu ANSYS, Inc.	Seiji Hayashi Japan Electronics and Information Technology Industries Association	Aveek Sarkar ANSYS, Inc.	
	1A-2	1B-2	1C-2	1D-2	1E-2	1F-2	
14:05   14:35	SCR mixing pipe optimization and numerical models validation N/A	Aero-Vibro-Acoustics for Wind Noise Application 65	Radiator Fan-Shroud assembly Design for Low NVH N/A	The Influence of Outbreak Magnetic Field by a Superconductor Coil for Surrounding Devices and Environment 183	EMI prediction method for SiC inverter by the modeling of structure and the accurate model of power device N/A	Measurements and Simulation of RF Substrate Noise Coupling in Wireless Communication ICs - N/A	
	Dr. Zhiguo Zhao Tenneco, China	Ashok Khondge ANSYS India	Ashok Patidar VE Commercial Vehicles Ltd (A Volvo Group and Eicher Motors Joint Venture)	Takahiro Koga ANSYS Japan K.K.	Sari Maekawa Toshiba Corporation	Makoto Nagata Kobe University	
	1A-3	1B-3	1C-3	1D-3	1E-3	1F-3	
14:50   15:20	Higher automotive simulation productivity in ANSYS Fluent 15.0 with NVIDIA GPUs41	Vehicle Aerodynamic Shape optimization with integration of morphing and optimization technologies N/A	Engine-Gasket HPC Supension NV Analysis using Linear Perturbation 124	Comprehensive Solution for Nissan LEAF Motor Performance Prediction 200	A new design approach using Sparameter to achieve noise reduction for power-device- mounted-board N/A	Achieving Dynamic Voltage Drop Sign-off in Automotive Designs N/A	
	Bhushan Desam, Ph.D. Nvidia Corporation, USA	Swatantra Kumar Singh Tata Motors, India	Toru Hiyake ANSYS Japan K.K.	Dr. David Staton Motor Design Ltd.	Akihiro Tanaka RITA Electronics, Ltd.	Soenke Grimpen Infineon, Germany	
	1A-4	1B-4	1C-4	1D-4	1E-4	1F-4	
15:25   15:55	Total Exhaust Simulation N/A	Underhood Thermal Management 77	Overcoming the Barriers Imposed by Geometry -Introduction of SpaceClaim - 136	High-Performance Real- Time Simulation based on ETAS HiL Test System and ANSYS Maxwell FEA Model 213	PCB design and simulation technique reducing Common-mode voltage N/A	Efficient On-chip ESD Protection Design and Verification Methodology using EDA Tools N/A	
	Saurabh Srivastava ANSYS India	Hamid Ghazialam ANSYS, Inc.	Ichiro Kawabata SpaceClaim Japan K.K.	Dr. Marius Rosu ANSYS, Inc.	Atsushi Nakamura Ultimate Technologies Incorporated	Yoko Otsuka Renesas System Design Co., Ltd	
	1A-5	1B-5	1C-5	1D-5	1E-5	1F-5	
16:10   16:40	Numerical Simulation on Burst Containment Hyperthermal Highspeed Experiment of Turbine Housing N/A	How to boost Fluent Adjoint using RBF Morph 98	Resin Transfer Molding Simulation for Woven Fabric Composite Materials 145	High frequency, high power magnetic design with Maxwell 3D – from geometry creation to component optimization 221	Magnetic field analysis of contactless power transmission system on moving via electromagnetic induction N/A	A Novel Approach for On-Die Regulator Power Network Modeling and Analysis N/A	
	Xiaowei Du Honeywell, China	Marco Evangelos, Biancolini RBF Morph, Italy	Arata Hayashigaki CYBERNET SYSTEMS CO., LTD., Japan	Dr. Jenna Pollock Tesla Motors, Inc., USA	Tetsuya Takura Tohoku Institute of Technology	Teik Wah Lim Altera Corporation, India	
16:45   17:15	1A-6	1B-6	1C-6	1D-6	1E-6	1F-6	
	Calculation of heat transfer characteristics in the exhaust system of an automotive 59	Numerical study of DrivAer body model with add-on under-floor cover and rear spoiler using Ansys Fluent N/A	Press forming simulation of textile composite material156	MEMS Multiphysics Simulations in ANSYS Workbench 234	Analysis of electromagnetic wave propagation in the Automobile N/A	Power Noise Analysis for Mixedsignal Integrated Circuits N/A	
	Itsuhei Kohri Tokyo City University, Japan	Aniruddha Joshi Tata Consultancy Services Limited India	Koji Yamamoto CYBERNET SYSTEMS CO.,LTD., Japan	Metin Ozen, Ph.D. Ozen Engineering Inc.	Shinji Fukui NIPPON SOKEN, INC.	Fumihiro Minami Toshiba Corporation Semiconductor & Storage Products Company	

**Reception** 17:30-19:00

After all the sessions, a reception will be held at the foyer and the room indicated with the blue color. We hope this will be a good opportunity for you to exchange information with one another.

Interpreter Session

ANSYS Electronics Simulation Expo

	Automotive Simulation World Congress					
	Red Powertrain	Green Aerodynamics, Underhood	Orange Engines	Blue Automotive Electronics	Yellow RF, Microwave, & Communications	Purple MBD & Embedded System Development
13:30   14:00	2A-1 Measurement and Prediction technology of cooling capability for Hybrid drivetrain components 256	2B-1 Leveraging SGI's UV and VizServer platform to enable multiple CAE users to run ANSYS software with remote visualization in a data center 322	2C-1 CFD simulations with chemical kinetics for advanced engine combustion380	2D-1 Case study of automotive ESD analysis 446	2E-1 Non-contact power transmission technology on rotary or slide system using the electric field coupling N/A	2F-1 MBD solution covering from system design to verification by real- time simulation for automotive systems N/A
	Tadashi Yamada TOYOTA MOTOR CORPORATION, Japan	Tony DeVarco SGI, USA	Tsujimura Taku National Institute of Advanced Industrial Science and Technology	Hongkeun Kim SL Corporation, Korea	Kenichi Harakawa ExH Corporation	Kosuke Konishi IDAJ Co, Ltd. Japan
	2A-2	2B-2	2C-2	2D-2	2E-2	2F-2
14:05   14:35	Evaluation method for Pressure Loss Using Energy Dissipation266	An example of low speed competition car development using CFD 332	Numerical Investigation of Soot Formation in Gasoline Direct Injection Engines 396	Vehicle EMC simulation and prediction N/A	Maxwell-3D analysis of small capacity contactless power transfer system applied AGV N/A	An Application of SCADE Suite to the Design of Embedded Software for a Line- Tracing Robot - For Participating in the Embedded Technology Software Design Robot Contest N/A
	Hiroshi Okumura DENSO TECHNO Co.,Ltd. Japan	Tetsuya Fujimoto Sophia University, Japan	Jun Hashimoto Oita University, Japan	Xue Yue, Ph.D. CSR Qingdao Sifang Co.,ltd., China	Kiyotaka Fuji Fellow Energy Co.,Ltd./ Kyushu Institute of Technology Adjunct professor	Shuji Takahashi Gunma University
	2A-3	2B-3	2C-3	2D-3	2E-3	2F-3
14:50   15:20	RBF Morph mesh morphing ACT extension for ANSYS Mechanical 270	Aerodyanamics Development in SUBARU N/A	A Study of Autoignition in an Incylinder Engine by using Numerical Analyses and Optical Measurements 408	Simulation of stray magnetic couplings in EMC* filters for automotive power electronic devices. (* Electromagnetic Compatibility)456	Thermal design optimization considering the solar radiation and heat convection N/A	Prospects for Control Development Using Model- Based Requirement Decomposition N/A
	Marco Evangelos, Biancolini RBF Morph, Italy	Yusuke Oki FUJI HEAVY INDUSTRIES LTD., Japan	Akira Iijima Nihon University, Japan	Takashi Masuzawa DENSO CORPORATION, Japan	Toshihiro Tsujimura Toshiba Corporation Semiconductor & Storage Products Company	Junichi Ichihara AZAPA Co. LTD
	2A-4	2B-4	2C-4	2D-4	2E-4	2F-4
15:25 	CAEBAT Battery Thermal Management Project by General Motors, ANSYS and Esim 293	Rain Water Management 351	Study of Combustion Chamber Design for High Compression Ratio 422	Application of the simulation technology for the development of automotive product	Spatial Design in Wireless Power Transfer with Resonance field N/A	Problem applying Model- baseddevelopment in ISO26262 N/A
15:55	Sandeep Sovani ANSYS, Inc.	Padmesh Mandloi ANSYS India	Munemasa Hashimoto NEW A.C.E INSTITUTE CO., LTD.	Higashitani Hiroshi 467 Panasonic Corporation Automotive & Industrial Systems Company, Japan	Tatsuya Hosotani Murata Manufacturing Co., Ltd.	Aoki Yuho SGS Japan Inc.
	2A-5	2B-5	2C-5	2D-5	2E-5	2F-5
16:10   16:40	Process Integration and Comprehensive Solution Paradigms: Engine Combustion, Conjugate Heat Transfer, Durability and Fatigue 303	Study on modeling of aerodynamic sound by using both ANSYS and acoustic solver, WAON N/A	Design of components for high temperatures and thermo- mechanical fatigue (TMF) N/A	HEV/EV full system design validation including components and circuit N/A	Highly Accurate and Robust Automotive Radar System Design Using a Combined Electromagnetic Field Solver / Circuit Simulator Design Methodology.	System Modeling and Simulation:Trends and Enablers for Electrified Vehicle Systems N/A
	Laz Foley ANSYS, Inc.	Masaaki Mori CYBERNET SYSTEMS CO.,LTD., Japan	Vinay Carpenter ANSYS India	Liu Yan Chery New Energy Automotive Technology Co.Ltd., China	Markus Kopp ANSYS, Inc N/A	Kazuhiro Kawamura ANSYS Japan K.K.
	2A-6	2B-6	2C-6	2D-6		2F-6
16:45   17:15	ANSYS Customization Solutions313	ANSA-TGrid: A Common Platform for Automotive CFD Preprocessing 365	ANSYS Strategy for Internal Combustion Engine Simulations 433	Improving mechanical reliability of PC Board/Package N/A		The Future of Embedded Software Validation N/A
	Padmesh Mandloi ANSYS India	Mohammad "Peyman" Davoudabadi, Ph.D. ANSYS, Inc.	Ellen Meeks ANSYS, Inc.	Kazuhiro Matsuda ANSYS Japan K.K.		Casey Soileau National Instruments Japan Corporation