



PROGRAMME

International Conference and Exhibition

AUTOMOTIVE NVH COMFORT LE MANS 2016

Active Vibro-acoustics: Noise Cancellation & Sound Design

 **PALAIS DES CONGRÈS DU MANS, FRANCE**
19 & 20 October 2016



SIA and CTTM will jointly organise the 9th edition of the Automotive NVH Comfort conference that will take place on 19-20 October 2016 in Le Mans. As for the previous editions, the 2016 conference will address a specific topic, which presents a major interest for the automotive NVH community and trends for new technologies.

The specific topic of interest for the 2016 edition is what one might call “**Active acoustics and vibrations**”, which includes active noise and vibrations cancellation, active sound enhancement and active undesirable noise masking.

This specific topic has been selected by the scientific committee for two main reasons:

1. In the context of ambitious weight reduction objectives and in addition to the well-established passive solutions, the ‘active’ solutions are alternative technologies which present a considerable design potential.
2. Without ICE noise masking, the NVH design of electrical and hybrid vehicles becomes a very difficult task. The ‘active acoustic treatment’, via car loudspeakers, can be used to mask the undesirable high frequency noises and improve the sound quality in the passenger cabin.

Besides this specific topic, a wide range of NVH items will be addressed, such as: vehicles & ICE NVH, new materials, progress in testing technologies and CAE and the new challenge of electrical & hybrid vehicle acoustics.

We are counting on you all to make the Automotive NVH Comfort conference a big success.

Charles Zhang, CONFERENCE CHAIR

SCIENTIFIC COMMITTEE

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PROGRAMME // 19 OCTOBER 2016



08:30 Attendees registration - Breakfast in the exhibition

KEYNOTE SPEECHES

09:00 **The new 4-Cylinder Diesel engine - the NVH concept**
C. Meier, S. Bikker, P. Mayer, Daimler - Germany

09:30 **20 years evolution of active acoustic & vibrations in automotive industry, from active engine mount to multi-sense** / **C. Zhang**, G. Baudet, Renault - France

10:00 Coffee break in the exhibition

PASS-BY NOISE
 L. Gavric, Groupe PSA - A. Duval, Trèves

SYSTEMS – COMPONENTS
 K. Trdak, Autoneum - N. Dauchez, UTC

10:30 **Numerical assessment of car pass-by noise**
A. Appel de Gardane, FFT - France

Adaptive coatings on gears to improve NVH behaviour
G. Eitzinger, High Tech Coatings - Austria

10:55 **Sensitivity analysis of models for the prediction of vehicle pass-by noise**
H. Hamdad, C. Locqueteau, Renault - France
 C. Pezerat, Laum- France
 B. Gauvreau, IFSTTAR- France

Comparing frequency and time-domain simulation for NVH predictions in reluctance machines
C. Faria, Siemens - France

11:20 **Renault's Z.E. Voice: an Avant-Garde to Quiet Road Transport Vehicles Regulation**
T. Schmitt, C. Locqueteau, F. Silvani, Renault - France

Weight reduction and functionality increase on lightweight absorptive packages
M. Seppi, G. Lepoittevin, T. Delpero, D. Guigner, Autoneum - Switzerland

11:45 **Toward indoor pass by noise to improve development process from experimental to virtual testing**
L-F. Pardo, UTAC CERAM - France

Simulation & Optimization Driven Design Process for S&R Problematic
S. Gourg, Groupe PSA - France
 I. Benhayoun, K. Fiher, ALTAIR - Sweden
 J. Masson, Altair - France

12:10 **Drastic exterior noise reduction through optimization of acoustic shielding package**
M. Thivant, Vibrattec - France

Microstructure morphological optimization of foam-based lightweight insulators
T. Hoang, A. Duval, V. Marcel, Faurecia - France
 C. Perrot, Univ. Paris Est - France

12:35 Lunch break in the exhibition

POWERTRAIN
 L. Gavric, Groupe PSA - P. Bouvet, Vibrattec

AIR FLOW ACOUSTICS
 S. Naji, Valeo - D. Juvé, Ecole Centrale de Lyon

14:05 **Optimisation of wheel suspension for NVH comfort**
I. Chapelier, Groupe PSA - France

Predicting acoustic performance of perforated absorbing silencers, taking into account flow
A. Gallet, ESI - France
 B. Gardner, A. Mejdí, ESI - USA

14:30 **Keeping Transmission & Powertrain NVH Under Control: Systemic Approach by a Tier 1 Supplier**
S. Charles, B. Pennec, Schaeffler - Germany

Sound intensity measurements in turbocharger compressor ducts using multi-microphone arrays
I. Jaimes, J. Charley, CRITTM2A/Arts et Métiers Paristech - France
 A. Millot, CRITTM2A - France

14:55 **Air intake acoustic radiation on an internal combustion engine. Numerical and Experimental analysis at component state**
C. Chaufour, Groupe PSA - France
 J. Thomas, Mecaplast Group - France


Modeling of acoustical porous materials under flow
F. Chevillotte, MATELYS - France

PROGRAMME // 19 OCTOBER 2016

ACTIVE NOISE CONTROL C. Zhang, Renault - A. Courjal, Siemens		METHODS J. Gratadour, SIA - C. Pezerat, LAUM	
15:20	Application of Virtual Microphone Method for Active Noise Control S. Ueno, Panasonic - Japan	Trends in Aeroacoustics Vehicle Engineering B. Verrecas, P. Amery, K. Janssens, H. Vander Auweraer, Siemens - Belgium	
15:45	Powertrain vibration control using active technology ; experience of a carmaker J. Dusi, A. Kreis, Groupe PSA - France	The Benefits of Experiencing NVH and CAE Data from Pre-concept to Production D. Bogema, Brüel & Kjær - USA	
16:10	Coffee break in the exhibition		
16:40	The Practice of the Narrow-Band Active Noise Control for Fan BPF noise P. Li, Caeri - China	Improving Vehicle NVH CAE Prediction Capability to Prevent Expensive Late Design Changes A. Burke, Altair - United Kingdom	
17:05	Insulation performance of plastic parts with active control B. Surowiec, P. Gilotte, Plastic Omnium - France T. Costes, FFT - France	Integration of an End-Of-Line system for vibro-acoustic characterization and fault detection based on acoustic particle velocity measurements D. Fernandez Comesaña, G. Carillo, M. Korbasiewicz, Microflown Technologies - The Netherlands	
17:30	Active Noise Cancellation in a passenger car exhaust system with finite elements X. Robin, FFT - Belgium N. Driot, TENNECO GmbH - Germany	Comprehension of phenomena generating acoustic noise inside the passenger compartment of cars. Sources identification and simulations J. Carpentier, C. Pezerat, J-H. Thomas, LAUM - France A. Berry, GAUS - Canada	
17:55		Simulation of Truck Cabin Vibro-acoustic Response in Low Frequency Range including Effect of the Acoustic Treatments ; Comparison with Experiments F. Acher, Volvo- France C. Sandier, Y. Gerges, K. Ege, INSA Lyon- France	
18:20	End of first day		
19:00	Le Mans Cathedral private tour & organ concert		
20:00	Gala Dinner		



PROGRAMME // 20 OCTOBER 2016

08:30	Breakfast	
	POWERTRAIN L. Gavric, Groupe PSA - P. Bouvet, Vibrattec	AIR FLOW ACOUSTICS S. Naji, Valeo - D. Juvé, Ecole Centrale de Lyon
09:00	Chattering and Dual Clutch Transmission X. Descottes, O. Balenghien , Groupe PSA - France	Acoustic optimization of air intake systems M. Doggui , Mecaplast - France
09:25	Topology Optimization of an Engine Bracket under Harmonic Loads R. Helfrich, N. Wagner , INTES - Germany	Automotive Air Conditioning Sound Prediction <ul style="list-style-type: none"> • Introduction O. Cheriaux, Valeo - France • Aeroacoustic investigation of flap in a low Mach number ducted flow E. Perrey-Debain, UTC - France • Predicting sound quality using acoustic synthesis M. Legros, CETIM - France • Sound synthesis and perception C. Lambourg, Genesis - France
09:50	Pendulum Based Torsional Damper : Benefits and Drawbacks H. Mahé , Valeo - France	
10:15	Coffee break in the exhibition	
	ACTIVE NOISE CONTROL C. Zhang, Renault - A. Courjal, Siemens	METHODS J. Gratadour, SIA - C. Pezerat, LAUM
10:45	Interior Noise Effects of Active Vibration Cancellation for a 4 Cylinder Engine E. Kruse , Vibracoustics - Germany A. Harrison , Trelleborg - USA	Methods for sound quality evaluation of noises with spectro-temporal patterns R. Sottek , Head Acoustics - Germany
11:10	Challenges in integrating active systems within exhaust lines: sound generation and noise cancellation H. Steinkilber, D. Bönnen, H-J Kim , Faurecia - Germany	A new measurement technique for ducts characterization J-C. Le Roux, E. Portier, N. Poulain , CTTM - France JP. Dalmont , LAUM - France
11:35	Narrow band attenuation by an ANC feedback algorithm based on Youla-Kucera parameterization B. Vau , Ixblue - France	Sound power qualification of engine component in enclosed environment using an innovating acoustic imaging processing: Generalized Acoustic Holography S. Paillassieur, T. Le Magueresse, G. Gaude , MicrodB - France
12:00	Lunch break in the exhibition	
	ACTIVE NOISE CONTROL C. Zhang, Renault - A. Courjal, Siemens	METHODS J. Gratadour, SIA - C. Pezerat, LAUM
13:30	Sensor-less feed forward electrical Active Control Mount T. Enomoto , Nissan Motors - Japan	Relevance of inverse method to characterize structure borne noise sources: application on an industrial case and comparison with a direct method J-L. Wojtowicki, A. Cloix , Vibrattec - France
13:55	NVH improvement and sound enhancement using Active Vibration Control J-L. Gastineau , Hutchinson - France	Inverse method on vehicle's panels for wind noise source identification G. Baudet , Renault - France
14:20	Active Noise Control and Sound Design at European Automotive OEMs: Current applications and future trends R. Schirmacher , Müller BBM - Germany	Experimental sound source reconstruction using iPTF method: conformal mapping, FE model correlation and contributions by parts N. Totaro , INSA Lyon - France
14:45	ANC Microphone Disturbances: A Method of Detection in ANC Applications R. Nöthen , Bose Automotive - USA	
15:10	Engine Sound Enhancement for production cars – the Peugeot experience L. Gagliardini , Groupe PSA - France	
15:35	 Young Engineer Price Award Ceremony 	
15:50	Closing remarks	
16:00	End of conference	

EXHIBITION & SPONSORSHIP

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Do not miss the opportunity to advertise in the congress documents: a portal to leading decision-makers in the automotive industry.

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REGISTRATION FORM

Automotive NVH Comfort - Active Vibro-acoustics: Noise Cancellation & Sound Design // 19 & 20 October 2016
Réf: 2016-05

PLEASE COMPLETE AND RETURN THIS FORM:

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- 1164 € VAT Incl.** (970 € VAT Excl.) - Non Members
- 1032 € VAT Incl.** (860 € VAT Excl.) - SIA, CTTM, SFA members
- 588 € VAT Incl.** (490 € VAT Excl.) - Co-authors/Small companies/Labs/Researchers/Univ.* (< 100 employees)
- 576 € VAT Incl.** (480 € VAT Excl.) - CFA 2016 Le Mans academic attendees → Membership number:
- 144 € VAT Incl.** (120 € VAT Excl.) - PhD students**
- 48 € VAT Incl.** (40 € VAT Excl.) - Members Students**
- 0 €** - Main speaker must register online > www.sia.fr

**Small firms, Researchers and laboratories must not come under the control of big firms (→ 100 employees)*

***Please attached your student card - Gala dinner is not included*

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REGISTRATION CONDITIONS

- Registration fees include participation in the conference, proceedings, book of abstracts, refreshment breaks and lunches and dinner.
- Where it is not possible to send the payment together with the form, each registration should be accompanied by an official purchase order. Failing reception of an official purchase order or payment on the day of the congress, we regret that you will not be allowed entry to the congress.
- When we have received the registration form, we will send you a confirmation message and an invoice. Please indicate the accounts department address where necessary.
- In case of cancellation before 19 September 2016, 30% of the registration fees will be retained. After this date, the entire registration fee will be retained. Registered participants not able to attend may nominate a substitute. Written notice must be provided.

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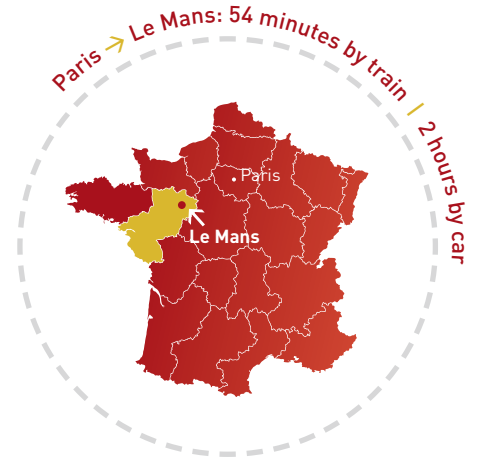
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- 2 hours by car
Ⓟ Car park available: entrance at boulevard Demorieux or rue Barbier
- 54 minutes by train, from Montparnasse station
Le Mans station is 7 minutes from the Palais des Congrès by foot.

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Bus line 17 (stop at "Palais des Congrès")



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