

6<sup>th</sup> Symposium

# Automotive and Railway Comfort

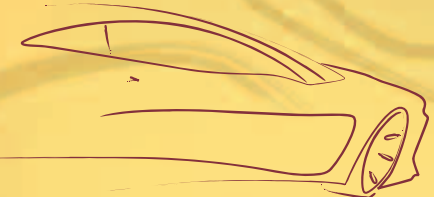
# 2010

## Acoustics & Vibrations

*SIA and CTTM are again jointly organising the 6th edition of the Automotive and Railroad Comfort congress at the Palais des Congrès et de la Culture du Mans on October 21st and 22nd, 2010.*

*Like the previous editions, this congress will be an opportunity to bring together the leading experts in the field and examine the latest developments in terms of technological solutions and engineering processes applied to the area of comfort in ground transportation (automotive, heavy goods vehicles, motorcycles, railway vehicles, etc.).*

**Le Mans**



**21 & 22 October 2010**

**Palais des Congrès  
et de la Culture du Mans**



[www.sia.fr](http://www.sia.fr)



[www.cttm-lemans.com](http://www.cttm-lemans.com)

8 h 30 Participants registration

9 h 00 **Introduction**  
Nicolas MOREL - Vehicle Systems Team Director, PSA Peugeot Citroën

**Session 1 – The customer's perception**

9 h 30 *Detection of emergences in a broad band noise : applications to automobile and railroad coaches*  
F. DUBOIS, S. MEUNIER, G. RABAU - CNRS - Laboratoire de Mécanique et d'Acoustique / F. POISSON - SNCF / G. GUYADER - Renault

10 h 00 *Wide BRIO benchmark and objective quotation of the acceleration feeling*  
J-F. CROS, C. THIRARD - 01dB-Metravib  
T. ANTOINE, P. DOLCINI - Renault

10 h 30 Exhibition visit, Coffee break

**Session 2 – Numerical and experimental methods**

11 h 00 *Transmission loss of sandwich composite-foam-composite panels*  
A. MEKNACI, M.A. HAMDI - Laboratory Roberval of Mechanics Acoustics and Materials

12 h 00 *Characterization of car equipments by a real-time acoustic holography technique*  
M.-H. MOULET, J.-C. LE ROUX - CTTM  
J.-H. THOMAS - LAUM

11 h 30 *An analytical model for a cylindrical reacting dissipative muffler*  
M. PACHEBAT - Société d'Acoustique Industrielle  
E. PORTIER - CTTM / Y. AUREGAN - LAUM

12 h 30 *Modeling uncertain porous materials using Monte-Carlo simulation*  
J-P. COYETTE, O. FEYS, G. LIELENS, B. VAN DEN NIEUWENHOF - Free Field Technologies SA

13 h 00 Lunch

14 h 30 **Keynote speech**  
*Prospects for vibroacoustic methods in automotive industry:*  
- Virtual prototyping of acoustic comfort, M. A. HAMDI - UTC  
- Analysis of aerocoustics excitations, C. PÉZERAT - LAUM

**Session 2 bis – Numerical and experimental methods**

15 h 30 *Total vehicle analysis approach*  
F. GILLE, A. BELANGER - EuroXA

**Session 3 – Materials and weight reduction**

15 h 30 *Impact of acoustic leakage on the absorption of mono layer and two-layer porous materials*  
F. CASTEL - Renault SAS / F. SGARD - Institut de Recherche Robert-Sauvé en Santé et en Sécurité du Travail de Montréal / N. ATALLA - Université de Sherbrooke

16 h 00 *A new procedure integrated in Nastran for trimmed body FE simulation, based on a transfer admittance model of the sound package. Implementation and validation.*  
T. COURTOIS, C. BERTOLINI - Rieter Automotive Management AG

16 h 00 *Acoustic and elastic effects in porous materials with multiple scales.*  
L. JAOUEN, F-X. BÉCOT - Matelys - Acoustique & Vibrations  
O. DAZEL - Laboratoire d'Acoustique de l'Université du Maine

16 h 30 Exhibition visit and coffee break

17 h 00 *Aeroacoustics prediction of automotive HVAC ducts*  
S. VERGNE - PSA Peugeot Citroën  
M. MESKINE, F. PÉROT, F. GILLE - Exa Corporation

17 h 00 *Novel technique for the introduction of curved trims in SEA / Virtual SEA models using poroelastic finite elements in the middle (and high) frequency range.*  
A. DUVAL, L. DEJAEGER, C. MORGENSTERN, J-F. RONDEAU - Faurecia Acoustics and Soft Trim

17 h 30 *Car aero-acoustic characterization using 3D spherical antenna*  
O. MINCK, M. ROBIN - MicrodB

17 h 30 *Efficient modeling of poroelastic materials for noise control : from limp assumption to modal reduction techniques.*  
N. DAUCHEZ - Supméca / O. DAZEL - LAUM

18 h 00 Exhibition

20 h 00 Cocktail and gala dinner

## 8 h 00 Keynote speech

*What will be the power train NVH evolutions in the future in face of the environmental challenges for automotive industry?*

Stephanie MALCUY - General manager of powertrain NVH department - Renault

## Session 4 – Engine and power train

**8 h 30** *Consideration of the common rail injection system for the noise contribution of a powerunit - a simulation approach*

B. KLARINI, M. JELOVIC - AVL-AST d.o.o.  
L. MARGERIE - AVL France

**9 h 00** *Diesel combustion noise quality in transient situations: development of an objective tool*

C. RENARD - PSA Peugeot Citroën

**9 h 30** *Exhibition visit, Coffee break*

**10 h 30** *Modern CAE based Tools and Methods for Low Noise Engine Development*

K. WOLFF, C. STEFFENS, C. NUSSMANN - FEV Motorentechnik GmbH  
M. ATZLER - Institute for Combustion Engines of RWTH Aachen University

**11 h 00** *Experimental determination of gearbox sensibility to rattle noise*

A. SCHMITT, B. BEGUET - MicrodB / D. REMOND - LAMCOS - INSA  
J. GRATADOUR, O. BALENGHIEN - PSA Peugeot Citroën

**11 h 30** *Noise and vibration challenges for two-cylinder and three-cylinder diesel engines*

S. TATE - Ricardo UK Ltd

## 13 h 30 Keynote speech

*Development of Vehicle Approaching Sound for Pedestrian System*

T. TABATA - Senior Expert - Nissan Motor

## Session 6 – Vehicle NVH synthesis

**14 h 00** *Audible warning device and minimum noise of road vehicles*

L-F. PARDO - UTAC

**14 h 30** *Acoustically Insulated HVAC condensed water draining device*

J-B. PRUNET - PSA Peugeot Citroën

**15 h 30** *Numerical simulation of trim efficiency in engine compartment*

C. ZHANG, Y. HYE, P. DUBOC, O. HILBRUNNER - Renault

**16 h 00** *Characterisation and simulation of sandwich damping for optimal automotive applications*

K. TRDAK, T. COURTOIS - RIETER AUTOMOTIVE SYSTEMS

**16 h 30** *A dynamic photoelasticity based method for Squeak & Rattle noises analysis*

T. GARDIN - Faurecia Automotive Seats  
F. GAUTIER, C. PÉZERAT - LAUM

## Session 5 – Vehicle equipment / Power train auxiliaries

**8 h 30** *Sound Prediction of an automotive HVAC using Noise Synthesis Technology*

A. AL MEZZAWI, Y. GOTH, X. CARNIEL - CETIM  
S. NAJI - Valeo Climate Control

**9 h 00** *Aero-acoustic analysis of a railway traction converter using lattice Boltzmann*

S. RECORBET, J. SAPENA, A. TABBAL - ALSTOM Transport  
F. PÉROT, M. MESKINE, S. GAUTIER - Exa Corporation

**10 h 30** *Wiper rubber blade squeal noise: test methodology for its characterisation and influential factors study*

A. SANON - Valeo

**11 h 00** *Experimental characterization and numerical simulation of the passive and active acoustical properties of an automotive air conditioning element using the scattering matrix approach*

H. TRABELSI, J-M. VILLE, F. FOU CART - Unité de recherche en Mécanique  
N. ZERBIB - ESI-Group

**11 h 30** *Prediction of forces induced by a windscreen wiper system on a car body*

C. PICARD, J-P. ROUX - CEVAA / A. SANON- Valeo

**12 h 00** *Lunch*

## Session 5bis – Vehicle equipment / Power train auxiliaries

**14 h 00** *Gearbox Vibration End of Line Control*

M. PREVEL - PSA Peugeot Citroën

**14 h 30** *Balancing passenger Thermal Comfort and Vehicle Energy Performance : a multi-domain system simulation approach*

A. ZWILLER - LMS France / A. BRIZARD - LMS Imagine SA

**15 h 00** *Derivation of the force interaction*

*within strongly coupled systems – application to diesel engine oil pumps*  
M. THIVANT, A. CARBONELLI,  
P. BOUVET - VIBRATEC



**17 h 00** *End of Conference*

# Scientific committee

## Technical section "vehicle dynamics"



Pascal BOUVET - Vibratec  
Jean-Pierre CIOLCZYK - Hutchinson  
Nicolas DAUCHEZ - SUPMECA  
Arnaud DUVAL - Faurecia  
Jean GRATADOUR - PSA Peugeot Citroën  
Dominique HABAULT - CNRS-LMA Marseille  
Daniel JUVE - Ecole Centrale Lyon  
Saïd NAJI - Valeo  
Hervé PICHON - CTTM  
Laurent POLAC - Renault  
Dominique ROMY - LMS  
Kresimir TRDAK - Rieter  
Charles ZHANG - Renault



## Registration conditions

Registration fees include participation to the congress, CD of proceedings, book of proceedings, coffee breaks, lunches, cocktail and dinner.

Where it is not possible to send the payment with the registration form, each registration form should be joined by an official purchase order.

In case of cancellation before 2010 October 1st 50 % of the registration fees will be retained by the organisers. After this date the full registration fees will be retained. Registered participants not able to attend may nominate a substitute. Written notice must be provided.

### Renseignements :

C.T.T.M : Luce Caytan  
Tél. : 02 43 39 46 44 – Fax : 02 43 39 46 47  
e-mail : [lcaytan@cttm-lemans.com](mailto:lcaytan@cttm-lemans.com)

## Booths

9 m<sup>2</sup> fitted-out stand, at 3 468,40 € (2900 VAT) included :

- Melamine partitions with aluminum structure
- 1 table + 4 chairs
- 1 WIFI access
- A recto page to be included in the proceedings
- Conference registration for 2 people (access to the congress, proceedings and CD-Rom, breaks, lunches, cocktail and dinner)

## Le Mans - Centre ville

For more information : [www.ville-lemans.fr](http://www.ville-lemans.fr)



# Registration form



*Automobile and Railroad Comfort*

2010 October 21<sup>st</sup> & 22<sup>nd</sup>

Name, first name : \_\_\_\_\_

Company : \_\_\_\_\_

Address : \_\_\_\_\_

\_\_\_\_\_

Postcode : \_\_\_\_\_ City : \_\_\_\_\_

Tél : \_\_\_\_\_ Fax : \_\_\_\_\_

E-mail : \_\_\_\_\_

VAT number : \_\_\_\_\_

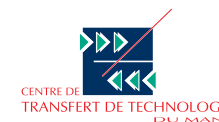
Intend to participate at symposium

- Speaker : *(free of charge)*
- Members (SIA, CTTM) : 1004.64 € TTC (840 € HT)
- Adhesion number : \_\_\_\_\_
- Non member : 1 136.20 € TTC (950 € HT)
- Will attend the dinner *(included in registration fees)*
- Booth rental (9 m<sup>2</sup>) : 3 468,40 € TTC (2900 € HT)

*Must be return before 2010 October 1st  
with your payment (check or bank transfert)  
payable to CTTM*



Références bancaires / bank details  
CTTM  
BNP Chasse Royale, F-72000 Le Mans.  
Compte 30004-01648-00021058781-20



CTTM  
20, rue Thalès de Milet  
Technopole Université  
72 000 Le Mans