



International Conference

NVH of Hybrid & Electric Vehicles

February 4, 2010

SUPMECA Paris, Saint-Ouen - France

■ Context and Objectives

Hybrid and electric vehicles are considered now as key technologies in order to tackle the CO₂ emissions challenge. The question is whether these new engines and powertrains and especially the electric mode are as silent as one would suppose at first sight? The situation is indeed more complex than expected because new sources are emerging due the missing masking of the traditional combustion engine. NVH issues occur with specific spectral contents coming from the electric engine or other equipments with dominant tonal high orders linked to the magnetic noise or to the whining noise of the gearboxes.

The resulting sounds, while being not loud, may be considered sometimes as annoying (the Harshness term of NVH). These new problems need to be specifically analysed and treated with innovative solutions. Moreover, the hybrid vehicles, including the range extender ones, present on the top of that the additional difficulty of requiring smooth transitions between the different engine modes. This conference will give to engineers and researchers on this topic, state of the art expert insights in this new challenging NVH field of "Hybrid & Electric Vehicles".

Programme

- 08 :30** Participants registration
- 09 :00** Welcome Speech
Introduction
Automotive powertrains in their economical, social and environmental context: from combustion engine toward electrical engine, what will be the compromise in the future?
Ladimir PRINCE – Responsable des innovations Chaines de Traction Alternatives et Systèmes Electrotechniques - Direction de la Recherche et de l'Ingénierie Avancée (DRIA) – PSA Peugeot Citroën
- 09 :20** Keynote Speech
Electric vehicle: zero emission mobility within everybody's reach.
Bernard DUMONDEL - Renault
- 09:40** Keynote Speech
Electrical and hybrid vehicles: a view from automotive suppliers.
Saïd NAJI - Valeo
- SESSION 1**
- NOISE PERCEPTION IN ELECTRIC VEHICLES**
Chairman: *Daniel JUVE & Jean-Pierre CIOLCZYK*
- 10 :00** Electric vehicle sound quality: a new driving experience and automotive relationship.
B. LE-NINDRE, G. GUYADER, E. LEBORGNE - Renault
- 10:30** Active sound design.
P. AUDRAIN - Hutchinson
- 11:00** Break
- SESSION 2**
- SYNTHESIS OF ELECTRIC AND HYBRID VEHICLES**
Chairman: *Arnaud DUVAL & Saïd NAJI*
- 11 :30** Acoustics of hybrid vehicles and emergences of whining noise.
M-C. BEZAT, V. ROUSSARIE - PSA Peugeot Citroën
- 12:00** Integration of powertrain into electrical and hybride vehicles: confort and NVH issues.
F. GERARD – LMS
- 12:30** NVH of hybrid vehicles.
M. WITTLER, R. ATAH S. PISCHINGER G. EISELE, K. WOLFF - VKA /FEV
- 13 :00** Lunch break
- SESSION 3**
- ELECTRICAL MOTOR**
Chairman: *Jean GRATADOUR & Dominique ROMY*
- 14:30** Magnetic noise from on board electrical motor.
V. FANFRANCHA - UTC
- 15:00** PEB (Power Electronic Bloc): architecture, operational behavior and acoustic consequences.
X. BENOIT - ADENEO
P. BOUVET - Vibratec
- 15:30** NVH development of electrical vehicle with range extender unit.
K. WOLFF, G. EISELE - FEV
- 16:00** Break
- SESSION 4 :**
- UNIT, COMPONENT AND SOUND PACKAGE**
Chairman: *Kresimir TRDAK & Nicolas DAUCHEZ*
- 16:30** HVAC and battery cooling noises for hybrid / electric vehicles and its impacts on the end user confort.
S. NAJI, F. AILLOUD - Valeo
- 17 :00** Architecture of battery cooling system of hybrid vehicle and its impact on acoustic confort.
L. MOREL – PSA Peugeot Citroën
- 17 :30** NVH-issues specific to electric-hybrid cars: the impact onto sound treatment package.
J. HORAK - Rieter
- 18 :00** End of conference

Programme committee

President:

Charles ZHANG – RENAULT

Members :

Pascal BOUVET - VIBRATEC

Jean-Pierre CIOLCZYK – HUTCHINSON

Nicolas DAUCHEZ – SUPMECA

Arnaud DUVAL – FAURECIA

Jean GRATADOUR - PSA PEUGEOT CITROËN

Dominique HABAULT – CNRS-LMA Marseille

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General Information

Official languages • English (no simultaneous translation)



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- Take the avenue Michelet (D14) [430m]
- Take the street "Rue du Docteur Bauer" on the left (D22) [1.07km]
- Continue on the street "Rue Albert Dhalenne" (D22) [530m]
- Take the street "Rue Saint-Denis" on the right [350m]
- Take the street "Rue des Châteaux" on the left [73m]
- Take the street "Rue Fernand Hainaut" on the right [22m]



REGISTRATION FORM

NVH OF HYBRID & ELECTRIC VEHICLES

FEBRUARY 4, 2010

SUPMECA, SAINT-OUEN - FRANCE

REF : 2010-07

PLEASE COMPLETE AND RETURN THIS FORM TO:

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- 275,08 €** VAT (230 € VAT Excl.) Researchers, laboratories and small and medium-sized firms (under 100 employees)
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REGISTRATION CONDITIONS

! Registration fees include participation in the conference, CD of proceedings, Book of abstracts, coffee breaks and lunch.

! 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 conference, we regret that you will not be allowed entry to the conference.

! When we have received the registration form, we will send you a confirmation letter and an invoice. Please indicate the accounts department address where necessary.

! In case of cancellation before January 4th, 2010, 30% of the registration fees will be retained by the organisers. 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.