NVH Challenges of Modern Efficient Automotive Powertrains

Conference

IFP ENERGIES NOUVELLES / RUEIL-MALMAISON, FRANCE
October 22nd, 2015
The modern powertrains should be efficient, have to respect the CO₂ strategy of carmaker by minimizing fuel consumption and have to meet high performances in final pollutant emission while still reaching the drivability and the NVH targets.

In order to fulfill all these requirements some technology breakthroughs are introduced recently:

- Downsizing and downspeeding of IC engines
- Diminishing number of cylinders
- Cylinder deactivation and variable compression
- Stop and Start devices and hybridization
- Assisted and other innovative turbocharging technologies
- Innovative torque irregularity filtering and vibration decoupling
- New automatized transmissions
- New combustion technologies
- Innovative powertrain suspensions
- Range extender
- Energy recovery
- Application of roller bearing in powertrain
- Engine encapsulation
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- Engine encapsulation

The conference will deal with the NVH problems induced by the new technologies mentioned above. The sound radiation, torque irregularity and vibration as well as the integration within the vehicle of powertrains equipped with such recent technology will be addressed.

**CONTRIBUTING ORGANIZATIONS**

**ORGANISING COMMITTEE**

**CHAIRMAN**

LÉON GAVRIC
Senior Expert in NVH
PSA PEUGEOT CITROËN

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<tr>
<td>09:00</td>
<td>Introduction: Modern Efficient Automotive Powertrains – Overview of NVH challenges</td>
<td>Léon Gavric, PSA Peugeot Citroën</td>
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<td>09:20</td>
<td>Challenges and solutions to improve engine start/stop comfort</td>
<td>Christoph Steffens, FEV</td>
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<td>09:50</td>
<td>Engine down-sizing and down-speeding: a new challenge for torsional vibration filtration</td>
<td>Hervé Mahé, Valeo</td>
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<td>10:20</td>
<td>Torsional vibration damping in automatic transmissions</td>
<td>Matthieu Hiard, PUNCH Powerglide</td>
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<td>COFFEE BREAK</td>
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<td>11:20</td>
<td>NVH of Hybrid Vehicles – Key Challenges and Conceptual Approaches</td>
<td>Stephan Brandl, AVL</td>
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<td>Hybrid Air Technology and (some) NVH issue</td>
<td>Laurent Galgiradini, PSA Peugeot Citroën</td>
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<td>12:20</td>
<td>MCE-5 VCRi demo engine NVH preliminary analysis</td>
<td>François Besson, MCE-5 Développement</td>
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<td>LUNCH BREAK</td>
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<td>14:30</td>
<td>A new generation of Turbochargers for future gasoline engines to meet highest NVH requirements in high power and – high pulsating engines</td>
<td>Rolf Sauerstein, BorgWarner</td>
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<td>15:00</td>
<td>Engine encapsulation solutions and methods to support NVH and Thermal desing optimization</td>
<td>Davide Caprioli, Autoneum</td>
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<td>Component sound power emission on an efficient diesel engine using 3D acoustic imaging techniques</td>
<td>Sebastien Paillasere, MicrodB</td>
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<td>16:00</td>
<td>NVH optimisation of modern automotive powertrains: examples of new technologies and optimization methods</td>
<td>Shanjin Wang, Renault</td>
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<td>Robust optimization of a truck timing gear cascade: numerical and experimental results</td>
<td>Alexandre Carbonelli, Vibratec</td>
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<td>17:00</td>
<td>Delivering Competitive NVH from Low CO₂ Powertrain Solutions</td>
<td>Matt Maunder, Ricardo</td>
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Only speakers' names are given.
USEFUL INFORMATION

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RER Line A, direction Saint-Germain-en-Laye, two options [see map]:
• get off at Rueil-Malmaison, take bus 244*, get off at Geneviève Couturier, or bus 27, get off at Bois-Préau.
You can also use lines 144 and 467, get off at Rueil-Ville;
• get off at Grande Arche de la Défense, take bus 258 (direction La Jonchère or Saint-Germain-en-Laye), get off at Bois-Préau.

* In the event of roadworks or if the bus is not following its usual route, ask the driver whether it stops at Geneviève Couturier. If it does not, get off at Rueil-Ville.

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