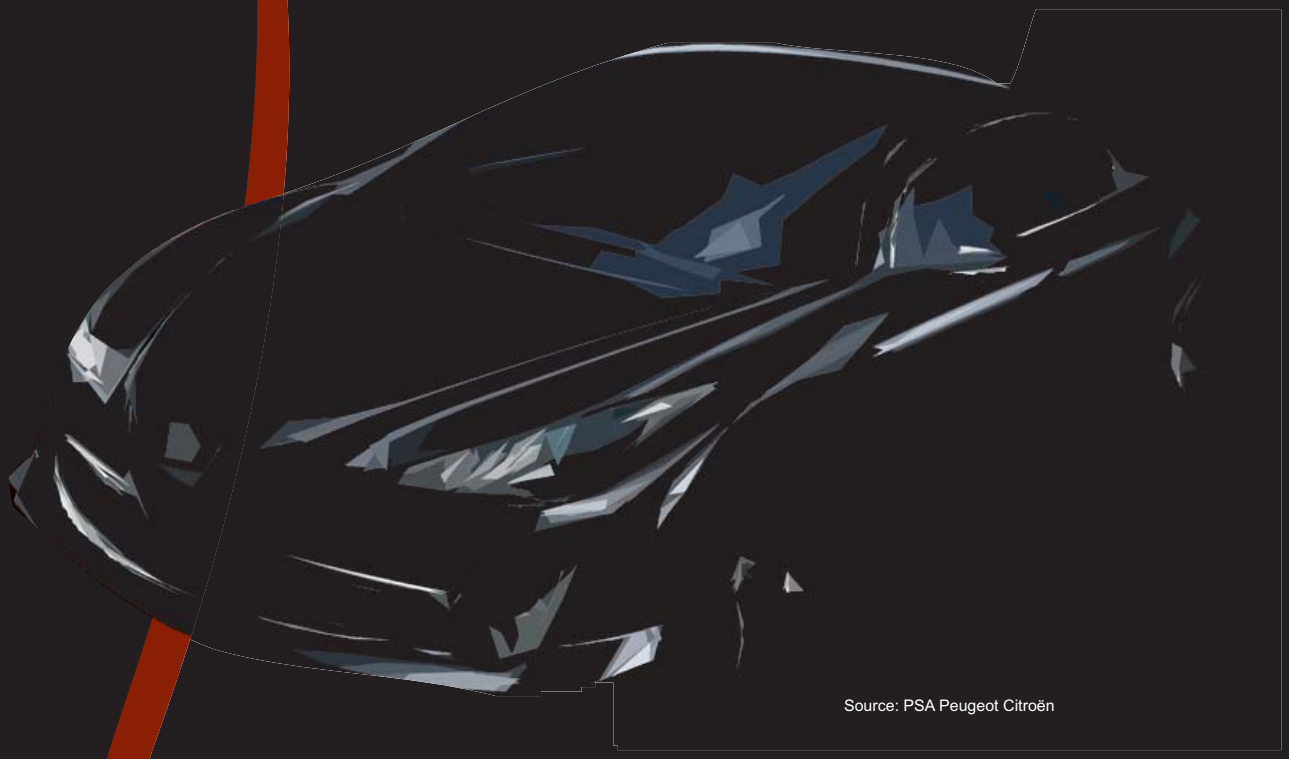
Above-The-Belt Line Modules and Systems 2006

The ITB Group, Ltd.



Source: PSA Peugeot Citroën

December 5, 2006
Sheraton Detroit Novi Hotel
Novi, Michigan U.S.A.

Sponsors:

Bayer MaterialScience

Dow Automotive

EXATEC
inspiring glazing technology

Final Program

Above-The-Belt Line Modules and Systems

AGENDA

Please note that conference proceedings are not available

7:00 - 8:15 a.m. **Registration and Continental Breakfast**

8:15 a.m. **OPENING REMARKS**
Dr. Joel Kopinsky, Managing Director
The ITB Group (U.S.A.)

Roof Systems

8:30 a.m. **Laser Direct Structuring, a New Method for Creating Power and Signal Carrying Applications**
LANXESS (U.S.A.)
Molded Interconnected Device (MID) technologies integrate electrical and mechanical functions into one part and hence, facilitate miniaturization and increase functionality. A new process for creating 3-Dimensional MIDs, called Laser Direct Structuring, is having a significant impact on the cell phone market and offers advantages for the automotive antenna module market.

9:00 a.m. **Panoramic Sunroofs – Low Weight Versus Good Acoustics**
Saint-Gobain Sekurit (U.S.A., Germany)
The use of thin laminated glass composed of special interlayer films for high acoustic dampening will be described. First applications of laminated roof glass in the market had thicknesses of 6 mm and more but it will be shown that with the latest technologies, 4.5 mm or even 4.0 mm thickness can be realized. The result is a roof glazing with comparable weight to that of the corresponding sheet metal plus interior trim of a normal metal roof.

9:30 a.m. **Lamborghini Gallardo Spyder - Roof System Design and Development**
Edscha Roof Systems (U.S.A.)
A roof system has been engineered to allow for packaging and articulation of the engine cover that would raise to allow the roof to fold and store beneath it, before closing flush with the body. This presentation will address the engineering challenges posed by the constraints of this unusual application and the solutions adopted to meet the stringent demands of its high performance.

10:00 a.m. **Mid-Morning Break**

10:30 a.m. **Plastic-Based Solutions for Low Weight Modular Roof Systems**
Bayer MaterialScience (U.S.A.)
Plastic materials such as polycarbonates and polyurethanes are suited for the combination of structural rigidity, free formability, transparency, part's consolidation and reduced manufacturing steps that key components of modular roof systems require. This discussion will focus on the key benefits of plastic systems to solve engineering and performance challenges for modular roofs. A detailed discussion of the key engineering issues including shape flexibility, stiffness, vibration, thermal expansion, performance testing and other issues will be provided.

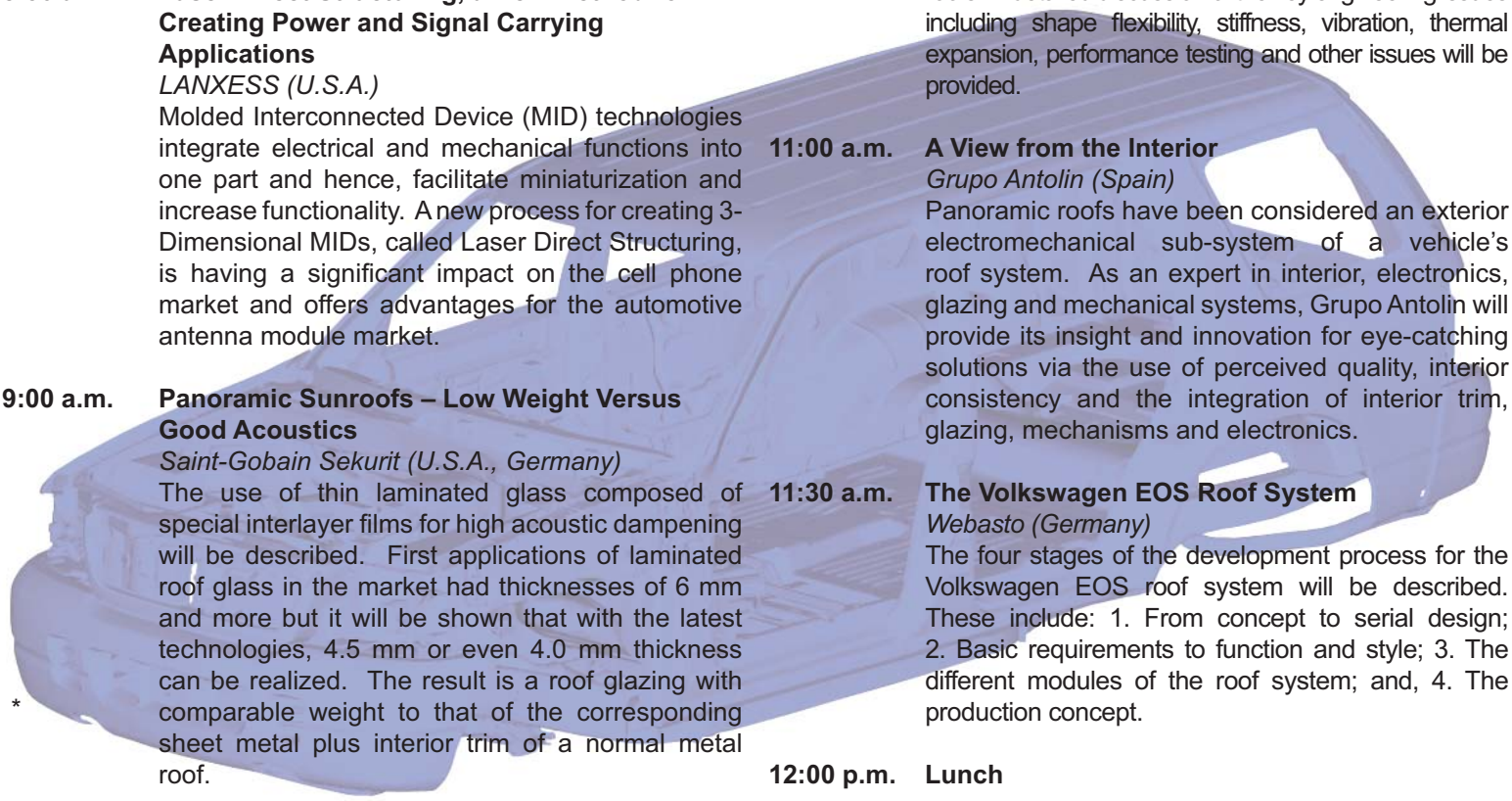
11:00 a.m. **A View from the Interior**
Grupo Antolin (Spain)
Panoramic roofs have been considered an exterior electromechanical sub-system of a vehicle's roof system. As an expert in interior, electronics, glazing and mechanical systems, Grupo Antolin will provide its insight and innovation for eye-catching solutions via the use of perceived quality, interior consistency and the integration of interior trim, glazing, mechanisms and electronics.

11:30 a.m. **The Volkswagen EOS Roof System**
Webasto (Germany)
The four stages of the development process for the Volkswagen EOS roof system will be described. These include: 1. From concept to serial design; 2. Basic requirements to function and style; 3. The different modules of the roof system; and, 4. The production concept.

12:00 p.m. **Lunch**

Rollover Protection

1:00 p.m. **Roof Strength and Occupant Protection in Rollovers**
Ford Motor Company (U.S.A.)
A review of the technical challenges associated with designing vehicle roof structures to achieve NHTSA's proposed changes to the U.S. regulation on roof strength (FMVSS 216) will be presented. The relationship between roof strength and occupant protection in rollovers will be reviewed, as well as Ford Motor Company's recent research on this topic.



* Picture Source: George Washington University and L&L Products

Exhibitors:
A. Schulman
Bytewise Measurement Systems
Cyro Industries

1:30 p.m. **Innovative Approach for Improving Roof Crush Resistance**
L&L Products (U.S.A.)
The objective of this study is to explore and identify design countermeasures that meet the proposed upgrade of the FMVSS 216 standard. Finite Element (FE) methods in LS-DYNA solver are used as a tool to evaluate the performance of each countermeasure. An example of a generic, public domain FE model of a SUV will be presented. The benefits of utilizing polymeric structural foam materials as part of a hybrid system solution to significantly improve roof crush performance will be demonstrated.

Polycarbonate Glazing

2:00 p.m. **Innovative Solutions for Machine and Production Cell in Multi-Shot Glazing with Polycarbonate**
Krauss-Maffei (U.S.A.)
Krauss-Maffei develops and uses special injection compression molding processes together with SpinForm machine technology to achieve high quality polycarbonate parts in series production. The design of SpinForm machines will be introduced together with highlights of the demands on the injection molding process. The presentation will conclude with an outlook for the future and new possible areas of the use of polycarbonate glazing in cars.

2:30 p.m. **New Choices and New Flexibility with Polycarbonate Glazing**
EXATEC (U.S.A.)
Exatec is integrating differentiating features, such as ambient lighting, antennas and potentially IR reflective solar control into glazing products directly in the injection molding process using film insert molding (FIM) technology. FIM technology, specifically targeted for the polycarbonate glazing market will be introduced. The flexibility of this technology to integrate differentiating features resulting in potential cost reduction for OEMs and their suppliers will be shown.

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3:00 p.m. **Afternoon Break**

Sealing System Developments

3:15 p.m. **Ionomer Sheet Technology: Body Color Roof, GRC, and Belt Sealing Applications**
A. Schulman (U.S.A.)
New Ionomer sheet technology offers the possibility of accomplishing seven material seals through only three or four extruders. Also, applying the body color in the extrusion process eliminates costly secondary operations and scrap. Discussion topics include reviewing samples, examining the manufacturing process and analyzing the cost structure.

3:45 p.m. **On-Line Profile Measurement for Automotive Extrusions**
Bytewise Measurement Systems (U.S.A.)
Profile360 is an on-line system for measuring the geometry of extruded profiles and it is used by automotive door and window seal, body side moldings and windshield surround suppliers. Users report reduced scrap due to improved dimensional performance, better quality, faster startup time and faster new product launches. This presentation will recap results from actual in-plant trials.

4:15 p.m. **Rapid Design and Testing at Metzeler APS**
Metzeler Automotive Profile Systems (U.S.A.)
To improve the translation of OEM customer needs and specifications to an engineering document or Rapid Design, MAPS has developed Product Description Sheets, (PDS). This method is used by weatherseal engineers to significantly reduce timing, improve information, standardization and accuracy during the concept stage of a program. With the use of its Rapid Testing approach, Metzeler has developed stand alone equipment that permits the quick validation of glass run system weather seals.

4:45 p.m. **TPV Seal Geometry Effects on Compression Set and Compression Load Deflection**
Trexel (U.S.A.)
ExxonMobil Chemical (U.S.A.)
The performance of dynamic seals is dependent on the design of the seal profile as well as properties of the material used in their construction. The results of investigations into the effects of TPV profile geometry on two key weatherseal performance criteria: compression load deflection and short and long term compression set will be presented. Additionally, the effects of TPV sponge density will be considered.

5:15 p.m. **Closing Remarks and Cocktail Reception**

Dow Automotive
Exatec
JSR America
L&L Products
LANXESS
Saint-Gobain Sekurit

Vehicles with roof systems on display:
- **Lamborghini Gallardo - presented by Edscha Roof System**
- **Volkswagen EOS - presented by Webasto Roof Systems**

Consulting Expertise

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