



## Vibro Acoustic Application

### Seminar

April 16<sup>th</sup> 2013

Heritage Motor Centre, Gaydon

vibro-acoustics



### Agenda

- 08:45 – 09:00 Registration and Coffee
- 09:00 – 09:15 Welcome and Introduction
- 09:15 – 10:00 Predicting Rattle  
– Trevor Edwards, VA Business Development Manager  
*A new methodology is described that deploys a combination of low and high frequency techniques for determining the likelihood and loudness of rattles in assembled structures.*
- 10:00 – 10:45 Recent Advances in Aero Vibro Acoustics for Automotive Structures  
– Denis Blanchet, Engineering Services Manager GmbH Vibro Acoustics  
*The use of CFD to establish aero acoustic or aero vibro acoustics phenomena is becoming an established practise. This presentation discussed the factors that need to be taken into account to better define the way in which vibro acoustic loads are extracted from CFD time histories.*
- 10:45 – 11:00 Coffee Break
- 11:00 – 11:45 Vibro Acoustic Analysis of Marine Structures  
– Denis Blanchet, Engineering Services Manager GmbH Vibro Acoustics  
*For many years empirical formulae was used to understand noise propagation in marine structures from sources such as propeller, engine and generators. New marine construction techniques and new materials, such as composites, demand a more rigorous approach is proposed for vibro acoustic prediction in marine structures.*
- 11:45 – 12:30 Vibro Acoustic Powertrain Analysis  
– Robert Fiedler, Senior Support Engineer VA  
*New simulation methodologies are being developed for modelling radiation. One of the most promising of these methodologies is Fast Multipole BEM that provides a computationally efficient means of performing these calculations. This presentation describes the use of Fast Multipole Methods for Powertrain applications.*
- 12:30 – 13:30 Buffet Lunch
- 13:30 – 14:15 Vibro Acoustic Analysis of Space Vehicle  
– Robert Fiedler, Senior Support Engineer VA  
*Lightweight structures made of specialised composite materials require a combination of low and high frequency simulation techniques to understand structural response during launch and deployment.*
- 14:15 – 15:00 Aero Vibro Acoustics in Pipes  
– Denis Blanchet, Engineering Services Manager GmbH Vibro Acoustics  
*See an application example of how aero vibro acoustic flow phenomena can be taken into account for vibro acoustic analysis.*
- 15:00 – 15:15 Coffee break
- 15:15 – 16:30 Worked Example using VA One of Automotive Aerospace and Marine Structures