

SPEAKERS



Mr. Stefan Kremer : International Sales Manager at Müller-BBM VibroAkustik Systeme, Germany, with a dedicated focus on business development in emerging markets.

He graduated in Electronic Engineering at the Technical University of Munich (TUM) and specialized in signal processing and speech recognition. He obtained his degree in cooperation with the Technical Institute of the German Public Service Radio and Television Broadcasting Authorities. For more than 15 years, he has used his comprehensive expertise in all fields of acoustics.



Mr. Florian Klüber : International Sales Manager at Müller-BBM VibroAkustik Systeme, Germany, with a broad expertise in exterior noise evaluations.

He graduated in Electrical Engineering and Information Technology at the Technical University Munich (TUM) with dedicated focus on technical acoustics, psychoacoustics, signal theory and analysis. His master thesis was in the field of psychoacoustic and tonality perception. Mr. Klüber has more than 10 years of high level expertise in NVH engineering, acquisition and analysis methods.

2 Day Proficiency Improvement Programme on Exterior Noise Evaluations : Challenges & Solutions

at ARAI, Kothrud, Pune

30th - 31st May 2017

REGISTRATION FORM

Name, Designation, Dept., Office No., Mobile No. & Email ID :	
Delegate - 1	
Delegate - 2	
Delegate - 3	
Company Name & Address	
Co-ordinator's Name, Designation, Contact No., Email ID	
100% Advance Payment Details	

Please fax/email/post duly filled-in registration form on or before 26th May 2017 to :
 Dr. K. C. Vora, Sr. Dy. Director & Head, ARAI Academy
 ARAI Post Box 832, Pune 411 004 / S. No. 102, Vetral Hill, Off Paud Road, Kothrud, Pune 411 038.
 Tel: 020-3023 1248 / 1245 / 1239, Fax : 020-3023 1104.
 Email: training.pga@araiindia.com; morgaonkar.pga@araiindia.com; patil.pga@araiindia.com



2015



2011

2 Day Proficiency Improvement Programme on Exterior Noise Evaluations : Challenges & Solutions



at

ARAI, Kothrud, Pune
 (The Automotive Research Association of India)

30th - 31st May 2017

Jointly Organized by



BACKGROUND & OBJECTIVES

In the acoustic development of vehicles, comfort- and sound engineering play an increasingly important role and must be aligned with the other vehicle targets, such as emission, dynamics, performance, and consumption. While each vehicle is supposed to contain a certain image, let it be sportive or comfortable, regulations regarding emitted noise have to be met worldwide. Both, an increasing model palette and a global markets indicate that more and more measurements have to be performed. This includes not only the conformity of production and type approval but also the research and development cycle, as the requirements have to be taken into account in an early stage. In this context, it is important to have a clear overview of the tools and methodologies for exterior noise development that are available. The seminar will give a comprehensive overview and provide a clear understanding of the engineering procedures in the field of vehicle exterior noise testing.

INTENDED LEARNING OUTCOMES

Completing the module, the delegates will be able to :

- Manage an efficient design process for the exterior noise of vehicles
- Develop effective and practicable measures and strategies for the development of individual acoustic characteristics
- Be aware of different methods used in sound engineering, e.g. concerning quality and comfort engineering
- Understand the necessity for high-quality measurement data acquisition and analysis across all standards
- Evaluate suitable application methods and tools for indoor and outdoor exterior noise evaluations
- Be more productive when troubleshooting by using state-of-the-art tools and methods
- Lead multi-disciplinary teams
- Demonstrate independent learning ability necessary for conducting professional development
- Become self-disciplined self-motivated, demonstrating personal responsibility in the pursuit of studies and professional practice

Note : ARAI reserves the right to change the dates, schedule, contents, speakers, venue etc. for the programme without any notice.

PROGRAMME

Day One

- 08.30 - Registration
- 09:00 - Welcome & Introduction
- 09.15 - ISO test track planning, construction and certification
- 10.00 - Pass-By Standards & Methods – characteristics
- 11.00 - Tea Break
- 11.30 - Outdoor Pass-By: Configuration & Testing
- 12.30 - Efficient workflows with Order & Data Management
- 13.00 - Lunch
- 14.00 - Indoor Pass-By – Theory & Practical Aspects
- 15.30 - Sound Localization – Spatial Distribution of Sound Sources
- 16:30 - Discussion and questions
- 17.00 - Conclusion

Day Two

- 09.00 - Practical workshop for pass-by measurement execution
- 11.00 - Tea Break
- 11.15 - Contribution Analysis of Pass-By Noise using Operational Transfer Path Analysis methods
 - Evaluation of Major Sound Contributions
- 12.30 - Lunch
- 14:00 - Written Test
- 14.30 - Summary, Discussion and Feedback
- 15.00 - Conclusion



ARAI

WHO SHOULD ATTEND ?

- Organizations involved in Vehicle R&D and Testing
- Vehicle and Tire Manufacturers, Tier1-suppliers
- Acoustics and NVH Development Engineers
- Test, Certification and Quality Managers
- Engineering / Consulting Companies
- Professors / Engineering Students

MODE OF PAYMENT

At Par / Multicity cheque or demand draft in favour of

The Automotive Research Association of India

payable at Pune.

ARAI, over five decades, has provided its design and development expertise to the Indian automotive industry, focusing on the testing and evaluation of components and systems to meet national and international standards. ARAI strives to achieve international recognition in these areas. In keeping with the globalization of economy and business, ARAI continues to enlarge its scope of services to meet the requirements of automotive industries around the world. In addition to utilizing state-of-the-art technology, laboratories and highly-trained personnel, ARAI recognizes the need to develop a new generation of engineers to meet the demands of the automotive industry, not just in India but across the globe.

ARAI ACADEMY is classified into three divisions:

LEARNING CENTRE has embarked upon a programme of building up human resources by commencing educational programme (Graduate, Post graduate & Doctoral) with specialization in Automotive Engineering. It has tied up with VIT University (Vellore), Veltech University (Chennai), College of Engineering (Pune), Christ University (Bangalore), University of Alabama (USA), Tennessee Tech University (USA), Loughborough University (UK) and University of Braunschweig (Germany).

TRAINING CENTRE, In line with Post Graduate and Doctoral Programs conducted by various universities abroad, ARAI Academy has devised various Proficiency Improvement Programmes (PIPs), to be taught by ARAI, Academia & Industry Experts. PIP gives engineers, faculty and student's knowledge and technical expertise in a wide range of automotive disciplines. It helps in understanding system's view point for automotive design and manufacture, with specific skills in formulating automotive engineering solutions in terms of their function and performance, through optional modules.

Based on the present system in universities, credits are proposed for each module, so that the graduate engineers can attend various modules and sum-up the credits required for Master's or Doctoral Programs. Participants also get chance to visit related laboratories of ARAI and get hands on experience. Certificates are issued on the basis of attendance & written test conducted at the end of the programme. We also conduct Training

REGISTRATION FEES

Category	Registration Fees (Rs.) (per participant)	Total Fees including Tax of 15% (Rs.)* (per participant)
Engineers & Professionals	10000.00	11500.00
Teaching Faculty	6000.00	6900.00
Engineering College Students	4000.00	4600.00

*Service Tax is as applicable at the time of program.

Registration fees include:

- Breakfast
- Lunch
- Delegate Kit

Programmes through WEBEX and Domain Training Programmes for Automotive Industry.

KNOWLEDGE CENTRE It has collection of around 23,000 books, standards, project reports, seminar/conference proceedings and around 75,000 SAE technical papers. It also has 237 eBooks. It subscribes to 40 national and international journals. It regularly publishes a monthly magazine 'Automotive Abstracts'. It also conducts literature / patent search for customer's projects. Please visit www.araiindia.com for more information.

Müller-BBM VibroAkustik Systeme is one of the world's leading suppliers of vibroacoustic measurement technology, focused on the acquisition, analysis and management of dynamic data. Our tight partnership with the automotive industry has resulted in comprehensive testing solutions for the NVH development of vehicles and their sub components for more than 30 years. The PAK family is a strong partner for all NVH measurement and analysis tasks. Its portfolio includes path breaking solutions for indoor and outdoor exterior noise engineering. Our PAK live technology steps up the efficiency and performance when testing - setting the path for future-oriented workflows. PAK seamlessly integrates into laboratory, production and field environments, and can be easily extended to various applications. Whether required for vibroacoustic, structural or rotational testing, PAK is a powerful tool for your standardized tasks, quality assurance and troubleshooting. A future-oriented approach for data management and task assigning completes our system.

Our PAK system partner in India is **WELAN Technologies**. Welan Technologies is in the fore front of providing technological solutions to the industry in the field of Sound & Vibration, Static & Dynamic Transducers, Test & Measurement Equipments and Analysis systems. Head quartered in Pune, the Detroit of India, we are ideally and centrally situated to serve our customers across India. We have a broad market knowledge, a vast customer data base, and a wide range of products and services to offer. Welan Technologies has highly qualified staff to understand the requirements of our customers and provide satisfactory solutions.