

First IMM International Applied Vibration Conference



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Date: 21st – 22nd November 2018

Venue: Parkroyal, Bukit Bintang, Kuala Lumpur



Asset owners and engineers from Oil & Gas, marine, automotive and locomotive industries and even academicians cannot deny the need and importance of vibration technology as an effective diagnostic tool to troubleshoot various problems related to design, construction, operation or maintenance. It has been a proven technology for decades and is very relevant in the era of Industry 4.0. especially when Internet of Things (IOT), Big Data & Data Analytics, Artificial Intelligence (AI) and smart technology are the current trend, it is important to know how to take advantage of the trend and remain relevant while performing vibration analysis. Taking this into consideration, the IMM vibration committee organized a 2-day International Applied Vibration Conference (IAVIC), themed 'Advancement of Vibration Technology in the 21st Century' which is the first of its kind. The IMM vibration committee is the largest technical committee that represents the Vibration community in Malaysia. The IMM vibration committee consist of captains of the industry as well as senior technical specialists from leading organizations such as Petronas, Shell, Woodgroup, Vibratec, Serba Dinamik, RZF Engineering, Baytech and AFCM as well as renowned academicians from UTM, UiTM, UM, UTAR, USM and UNIKL. In addition to that, senior engineers from government agencies such as SIRIM, the R&D arm of the Ministry of Defence and the Royal Malaysian Navy are also active members of the organising committee.

The event started with the prayer recital by Dr. Zulkarnaen Kedah, the IMM Hon-Treasurer and continued with Opening speech by the IMM President, Tuan Mohd Azmi Mohd Noor. IMM Deputy President and the Chairman of the Vibration Committee, Dato' Dr. Ir. Mohd Abdul Karim Abdullah then delivered the welcoming speech, while addressing the importance of embarking on the key components of the industrial revolution 4.0 related to vibration technologies. Next on stage was the much awaited guest speaker, Mr. Fadhlán Nik Abdul Aziz, Head of Innovation, Petronas, who delivered his speech entitled "Innovation Gateway@Petronas. He explained that, using PETRONAS crowdsourcing platform, the Innovation Gateway @ PETRONAS, innovative solutions from across the globe are welcome to submit proposals and pitch their ideas and that PETRONAS issue Technology Challenges to the global community to seek innovative solutions.

Continuing the morning session after the networking tea break was Keynote 1, Mr. Khairul Anwar Mohd Nor from Petronas, who delivered a thoughtful speech entitled 'Application of Vibration Signature to Diagnose Gas Turbine Engine Stall'. He stressed that starting up a gas turbine can be very time consuming when dealing with rare issues that had never been experienced before or problems with the least anticipated probability of occurrences. He then shared how vibration measurement as a part of Condition Monitoring Technique can help to determine immediate root cause of GE LM2500 aero derivative Gas Turbine engine stalled during start-up, for non-related vibration issue or case. The morning session continued with the presentation entitled 'Frequent Centrifugal Compressor Failure on Production Platform' by Mr. Juarez Lowe, VROC (Australia). Mr. Juarez explained the possibilities and successful cases of applying big data analytics, neural networks and deep learning to extrapolate the data with incredible speed and learn over time. The third speaker of the morning session on Day 1 was Ir. Dr. Alex Ong Zhi Chao from University Malaya who delivered a speech on 'Impact -

Synchronous Modal Analysis (ISMA) - An Alternative for Operational Modal Testing'. His presentation and work received a loud applause from the floor with many keen questions and enquiries on furthering his research and work on the presented title. The final speech for the morning session of Day 1 was delivered by Ahmad Nu'man Ahmad Fawzal from AF Condition Monitoring who talked about 'Dealing Vibration with Ageing Process Facilities Rotating Equipment'. He sparked interest from the delegates by shedding light on how to determine the priority in solving the malfunction issues related to vibration because ageing facilities are also exposed to combination of machinery faults which contributes to high vibration issue. The event then stopped for lunch and networking session.

Keynote Speaker 2, right after the lunch break was Mr. Nicholas Vincent from Vibratec (France), who conveyed a presentation titled 'A Methodology for Railway Ground Borne Noise and Vibration Prediction'. Moving away from the oil and gas industry, Mr. Nicholas gave the audience new application perspectives by explaining the development and validation of 3D FEM models that include boundary conditions to avoid wave reflections at the model extremities, adapted for railway ground borne vibration. He presented a case study that covered all the physical phenomena, from the simulation of the train-track interaction to the inside building response. Mr. Fairuz Salleh from Serba Dinamik Group Berhad came up next with his topic of choice, namely 'Motion Amplification - Seeing is Believing'. As much as the title, he managed to keep the delegates glued to their chairs, with an exciting new concept in vibration measurement that is bound to cause a certain amount of disruption in the market. The final speaker of Day 1, Mr. Henry Chua from Emerson then presented with the title, 'Digital Transformation of Monitoring Assets Case Stories and Coming Trends'. He clarified on how Emerson's development of vibration monitoring products and solutions are changing and keeping pace with the current Digital Transformation wave. Before concluding the Day 1, a forum entitled 'The Significance of Vibration Technology in the Industry 4.0' was held, moderated by Prof. Dr. Andy from UTAR. The panelist consisted from the list of speakers in Day 1.



Figure 1: Forum on Day 1 entitled 'The Significance of Vibration Technology in the Industry 4.0'



Figure 2: Delegates on Day 1 of the IAVIC

Day 2 started with the same amount of energy and excitement through a well delivered talk by the Keynote speaker 3, Mr. Mohd Syukri Mohd Khalid from Sarawak Shell Bhd who spoke about 'Vibration Analysis on Turbomachinery'. His thoughts as well as case study presented caused an interesting debate and questions from the delegates as he provided them a comparison of the advantages and disadvantages of the varied modern techniques used or recommended in today's industry for condition monitoring. Mr. Rob Swindell from Wood PLC, United Kingdom went up next, right after the morning break with a thought-provoking topic, 'The Energy Institute AVIFF Guidelines: 10 Years of Learning'. His presentation examined what has been learned from using the guidance over the last 10 years, as well as some of the key technical aspects from several recent Joint Industry Projects that will feed into the new revision. The session continued with a renowned senior engineer from the local automotive industry, Ir. Azmi Osman from Proton Bhd. His topic of choice was 'Essential Design Concepts and Features to Improve NVH in Modern Engines'. He deliberated the various design concepts and features to reduce noise and vibration that can be applied to critical engine parts like cylinder block, oil pan and windage tray.

The final speaker of the Day 2 morning session was Ir. Dr. Zainal Fitri Zainal Abidin from UNIKL MFI with his speech entitled, 'Door Closing Jury Testing Using Non Parametric Statistical Method'. His fascinating study explored the parametric test for doing the ranking for the selection of the best to worst door closing sound. The morning session on Day 2 was then adjourned to pave way for the much awaited lunch break and networking session. Continuing the conference after the lunch break, the delegates were again glued to their seats with an eye opening presentation and superb oral skills by Commander Ir. Dr. Arman Ariffin, from the Royal Malaysian Navy entitled 'Vibration Battle on Royal Malaysian Navy Warships'. In his speech, an overview of the preparation of the Royal Malaysian Navy towards the Industrial Revolution 4.0 was presented as well as some existing project and future development program in the Royal Malaysian Navy were also discussed.

Continuing the momentum, the next speaker on stage was Mr. Ngeow Yeong Ken from SKF with his presentation entitled 'Wireless Vibration Monitoring'. He introduced the latest technology and process to transform industry through data connection, collection, correlation and collaboration in SKF and explained further how machine can keep track of themselves instead, issuing a warning if something needs to be fixed and indicating the best time to do the repair work. The last speaker of the conference, Mr. Tiago Feliaciano from SEMEQ, Brazil talked about the 'Advancement of Vibration Technology In the 21st Century'. He explained the major features they should consider when comparing and buying vibration sensors available on the market. Before the very well summarized closing speech by Dato' Dr. Ir. Mohd Abdul Karim, a forum was again held on Day 2 entitled, 'Challenges to Increase Vibration Analysis Relevance in the 21st Century' moderated by Ir. Azmi from Proton with the Day 2 speakers participating as the panelists. All in all, the conference was attended by 150 delegates, 12 exhibitors, with 5 key notes and 12 speakers delivering various topics from a wide range of industries. This international conference showcased the latest technologies and methodologies from the vibration world through relevant topics and case studies to support and enlighten the above mentioned statements. Participants were able to engage and learn something new from industry leaders and academicians from top universities. From keynote speeches to exhibition, from forum to demonstration, IAViC covered it all. Kudos to the organising committee and all the conference sponsors.

ACADEMIC VISIT TO IMM INTERNATIONAL APPLIED VIBRATION CONFERENCE (IAViC) 2018



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Date: 22nd November 2018
Venue: Royale Chulan Hotel, Kuala Lumpur



The IMM International Applied Vibration Conference (IAViC) 2018 was organized on 22nd November 2018 at Royale Chulan Hotel, Kuala Lumpur. Forty students from the Faculty of Applied Sciences, Universiti Teknologi MARA (UiTM) Shah Alam joined this event. The panels of experts from industry presented on applied vibration. Asset owners and engineers from oil & gas, marine, automotive and locomotive industries cannot deny the need and importance of vibration technology effective diagnostic tool to troubleshoot various problems related to design, construction, operation or maintenance. Professionals have shared their challenges as well as hands-on experiences, thus providing students a glimpse of the real-life working environment in the industry. During the conference session, the students also visited the exhibition booths. The exhibitors shared their experience and introduced applied technology to the students.

Overall, this event has received positive feedback from the students. Their interest and knowledge in materials sciences and applied vibration were greatly increased and they would be interested to attend similar events in the future. In a nutshell, students from Faculty of Applied Sciences, UiTM Shah Alam would like to express their sincere appreciation to IMM for the opportunity to attend this event.



Figure 1: Student members of IMM from UiTM student chapter attending the conference



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