## Day 1

**2nd December 2019**

### Time Table

<table>
<thead>
<tr>
<th>Time</th>
<th>Programme</th>
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<tbody>
<tr>
<td>08:00 - 09:45</td>
<td><strong>Mural Junior Paper</strong>&lt;br&gt;Registration</td>
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<tr>
<td>09:00 - 09:45</td>
<td><strong>Mural Junior</strong>&lt;br&gt;Opening Ceremony</td>
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<tr>
<td>09:45 - 10:30</td>
<td><strong>Mural Junior</strong>&lt;br&gt;Exhibition Opening</td>
</tr>
<tr>
<td>10:30 - 11:00</td>
<td>Coffee</td>
</tr>
<tr>
<td>11:00 - 11:45</td>
<td><strong>Mural Junior</strong>&lt;br&gt;Keynote Presentation&lt;br&gt;Be careful what you wish for&lt;br&gt;Prof. Andrew Jall</td>
</tr>
<tr>
<td>11:45 - 12:30</td>
<td><strong>Mural Junior</strong>&lt;br&gt;Keynote Presentation&lt;br&gt;The advantages of using measured transmission error as a tool for gear diagnostics&lt;br&gt;Prof. Asim Kavita</td>
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### Lunch

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<tr>
<th>Time</th>
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<tbody>
<tr>
<td>12:30 - 14:00</td>
<td>Condition Monitoring Methods and Technologies&lt;br&gt;Guided Waves for CM/NDT&lt;br&gt;Condition Monitoring, Simulation and Design for Wind Turbines</td>
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</table>

### Session Chair: Dingho He<br>Session Chair: Andrew Bell<br>Session Chair: Lars Schubert<br>Session Chair: Christopher Lane

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<td>14:00 - 16:00</td>
<td><strong>Condition Monitoring Methods and Technologies</strong>&lt;br&gt;Guided Waves for CM/NDT&lt;br&gt;Condition Monitoring, Simulation and Design for Wind Turbines</td>
</tr>
<tr>
<td>14:00 - 14:20</td>
<td>Condition Monitoring using Open Looping and Parameter and Time Frequency Analysis&lt;br&gt;Shihang Wang&lt;br&gt;Application of acoustic emission technology in oil-inverted transformer partial discharge detection and location of local discharge source&lt;br&gt;Jingyong Xing</td>
</tr>
<tr>
<td>14:20 - 14:40</td>
<td>Rotating Machinery Fault Diagnosis with Weighted Function Manifest Learning&lt;br&gt;Li Quanbing&lt;br&gt;Research on feature extraction of acoustic emission signals based on weighted function manifest learning&lt;br&gt;Douguo Wang</td>
</tr>
<tr>
<td>14:40 - 15:00</td>
<td>Fault Diagnosis of Single Stage Based Current by Energy Operator and VR Algorithm&lt;br&gt;Sommith Sarangi&lt;br&gt;High Speed Train Bearing Fault Diagnosis Based on AI Model of Acoustic Emission&lt;br&gt;Dongming Hou</td>
</tr>
<tr>
<td>15:00 - 15:20</td>
<td>An Efficient Multi-scale Based Multifaceted Analysis Method to Extract Weak Signals for Gearbox Fault Diagnosis&lt;br&gt;Yan Rui Ping&lt;br&gt;Through fault identification in feed drives using adaptive wavelet-based features and decision trees&lt;br&gt;Alexander Mossman</td>
</tr>
<tr>
<td>15:20 - 15:40</td>
<td>Research on Efficiency Detection of In-service Trough color drying system&lt;br&gt;Le Chen&lt;br&gt;Research on Evaluation Method of Safety Integrity for safety-related control system of Amusement Ride&lt;br&gt;Jim Costain</td>
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### Coffee

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<tr>
<td>15:40 - 16:00</td>
<td>Condition Monitoring of Machinery&lt;br&gt;Structural Health Monitoring&lt;br&gt;CM/NDT Technologies and Applications&lt;br&gt;Automation and AI for CM/NDT</td>
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### Session Chair: Robert Randell<br>Session Chair: Roon Sohn<br>Session Chair: Lars Schubert<br>Session Chair: Christopher Lane

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<tr>
<td>16:00 - 18:00</td>
<td><strong>Condition Monitoring of Machinery</strong>&lt;br&gt;Structural Health Monitoring&lt;br&gt;CM/NDT Technologies and Applications&lt;br&gt;Automation and AI for CM/NDT</td>
</tr>
<tr>
<td>16:00 - 16:40</td>
<td>Standard development and application on acoustic emission condition monitoring of armored device&lt;br&gt;Zhong Liu&lt;br&gt;Detection of micro cracks on rotating shaft using non-contact ultrasonic modulation measurement&lt;br&gt;Huan Sohn&lt;br&gt;Guided ultrasonic waves in glass laminate aluminium reinforced epoxy&lt;br&gt;Marcin Knecht</td>
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<tr>
<td>16:40 - 17:00</td>
<td>Abrasive Wear Condition Monitoring in an Axial Slurry Pump&lt;br&gt;Michael Leicht&lt;br&gt;Theoretical analysis of dusting amplitude calculation of tangential waves on pipe&lt;br&gt;Prof. Jason Lee&lt;br&gt;Ultrasonic guided waves in unidirectional fiber-reinforced composite plates&lt;br&gt;Holding Plan&lt;br&gt;Automation for NDT and Condition Monitoring: Opportunities and Challenges&lt;br&gt;Christopher Lane</td>
</tr>
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</table>
| 17:00 - 17:20 | Fault classification of Thin film Electrolyte Membrane Fuel Cell System Based on Empirical Mode Decomposition<br>Yousif Yabib Ahmed Abouker<br>Umbrella wave excitation using a flexible piezo-acoustic transducer for structural health monitoring<br>Wei Li<br>Low-velocity impact detection in composites by combination of guided wave imaging and imaging frequency peaks count technique<br>Wendlin J
| 17:20 - 17:40 | Experimental validation of the blade excitation in a shaft vibration sensors<br>Yogesh Vistak<br>Mode flexibility and frequency dependence of guided waves generated by piezoelectric wafer transducer in rubber embedded in concrete<br>Ye Wu<br>Lens wave propagation of 50 and 24 modes in unidirectional CFRP plate for condition monitoring: Comparison of FE simulation with experiments<br>Young H. Kim<br>Source location of Acoustic Emission for nondestructive testing<br>David Minckwitz<br>Material testing and artificial intelligence<br>Yashoda Anilshankar |
| 17:40 - 18:00 | A new method of remaining useful life prediction for machines under different conditions based on transfer learning and classification<br>Yi Lin<br>Nonlinear Study of Damaged Spring Material Using Guided Wave<br>Jeonghun Koo<br>Quality Control of Material and Treatability<br>Mukundan Raghavan Adarsh |

### Leveraging on iLost for Condition Monitoring as Operation Excellence<br>Rafqi Nse
## PROGRAMME

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<thead>
<tr>
<th>TIME</th>
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<tr>
<td>09:00 - 09:45</td>
<td>Registration</td>
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<td>09:45 - 10:30</td>
<td>Keynote Presentation</td>
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<td>11:00 - 11:20</td>
<td>Pipeline leak Detection Methods/ Compositional Assessment of Pipeline Leak Detection Methods</td>
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<td>11:20 - 11:50</td>
<td>Research on Noise Characterization of Pipeline Structurebirds</td>
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<tr>
<td>11:50 - 12:00</td>
<td>Research on Structural Damage Pre-warning Based on Experimental study on fluid-structure interaction vibration</td>
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## SESSIONS

### Day 2

**Marina Bay Sands, Singapore**  
**2-5 December, 2019**

### Tuesday

#### Program:
- **Morning Session:**
  - 09:00 - 10:00: Pipeline leak Detection Methods/ Compositional Assessment of Pipeline Leak Detection Methods
  - 10:00 - 11:00: Research on Noise Characterization of Pipeline Structurebirds
  - 11:00 - 12:00: Research on Structural Damage Pre-warning Based on Experimental study on fluid-structure interaction vibration

#### Locations:
- **Orchid Room 4011 A & B**
- **Orchid Room 4011 B**
- **Orchid Room 4022**
- **Orchid Room 4023**

### Keynote Speeches:
- **Prof. Danwei Zhong:**
  - Title: Comparative Assessment of Pipeline Leak Detection Methods
  - Location: Orchid Room 4011 A & B
- **Mr. Jimmy Lee:**
  - Title: Experimental study on fluid-structure interaction vibration monitoring of high pressure manifold used for hydraulic fracturing of shale gas
  - Location: Orchid Room 4011 A & B

### Lunch:
- **Time:** 12:00 - 13:00
- **Location:** Melati Junior Foyer

### Afternoon Session:
- 13:30 - 14:00: Recent Advances on Anomaly Detection for Industrial Application
  - Location: Orchid Room 4011 A & B
- 14:00 - 14:30: Condition Monitoring Methods and Technologies
  - Location: Orchid Room 4011 A & B
- 14:30 - 15:00: Condition Monitoring Methods and Technologies
  - Location: Orchid Room 4011 A & B
- 15:00 - 15:30: Condition Monitoring Methods and Technologies
  - Location: Orchid Room 4011 A & B
- 15:30 - 16:00: Condition Monitoring Methods and Technologies
  - Location: Orchid Room 4011 A & B
- 16:00 - 16:30: Condition Monitoring Methods and Technologies
  - Location: Orchid Room 4011 A & B
- 16:30 - 17:00: Condition Monitoring Methods and Technologies
  - Location: Orchid Room 4011 A & B

### Coffee Break:
- **Time:** 15:30 - 16:00
- **Location:** Melati Junior Foyer

### Keynote Speeches (Continued):
- **Dr. Mark Weiland:**
  - Title: Comparative Study of Statistical Based Change Detection Methods for Multidimensional and Multitemporal SAR Imagery
  - Location: Orchid Room 4011 A & B
- **Prof. David Antonelli:**
  - Title: A novel method of PEM fuel cell fault diagnosis based on signal image conversion
  - Location: Orchid Room 4011 A & B
- **Dr. David Fan:**
  - Title: Fault Diagnosis of machinery based on embedded sensors and machine vision
  - Location: Orchid Room 4011 A & B

### Additional Information:
- **Registration:**
  - Location: Marina Bay Sands Convention Centre
- **Keynote Presentations:**
  - Location: Melati Junior Foyer
- **Lunch:**
  - Location: Melati Junior Foyer
- **Coffee Break:**
  - Location: Melati Junior Foyer

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**Day 1**

- **Session Chair:** Jean-Yves Tourneret
  - **Session Chair:** David Fan
  - **Session Chair:** Ye Lu
  - **Session Chair:** Nadine Martin

**Day 3**

- **Session Chair:** Philippe Goupil
  - **Session Chair:** David Fan
  - **Session Chair:** Jorge Yebra
  - **Session Chair:** Nadine Martin

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**Program Highlights:**
- **Comparative Assessment of Pipeline Leak Detection Methods**
- **Research on Noise Characterization of Pipeline Structurebirds**
- **Experimental study on fluid-structure interaction vibration monitoring of high pressure manifold used for hydraulic fracturing of shale gas**
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<td>09:00 - 09:45</td>
<td>Opening Ceremony: Tour for NUSCE</td>
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**Orchid Room 4031AB and 4032**

**Keynote Presentation**

09:45 - 10:20  A Research on the Appropriate Guided Wave Mode Selection for Structural Health Monitoring on Containment Liner Plate in the Nuclear Power Plant

- Prof. Xuefei Zha

10:30 - 11:00  Coffee

**Orchid Room 4031AB**

11:00 - 11:20  Keynote Presentation

- Acoustic emission monitoring on mechanical and electrical equipment
  - Prof. Gaoqin Shen

11:40 - 11:45  Keynote Presentation

- Advances in AI: what machine learning matters?
  - Prof. Yanmei Gao

12:30 - 13:30  Lunch (Sushi talk by Olympus)

**Orchid Room 4031AB and 4032**

13:30 - 14:00  Applied Digitization for Industries

13:30 - 13:50  Acoustic Emission Monitoring on Mechanical and Electrical Equipment

13:30 - 13:50  Signal Processing and Modelling of Complex Systems

**Orchid Room 4032**

**Orchid Room 4030 (Industry Talk)**

14:00 - 14:20  Digital Twin of a Windfarm-Machinery for Condition Monitoring

- Prof. Xuefei Zha

14:00 - 14:20  Fault diagnosis of pitch system bearings on wind turbine based on acoustic emission method

- Yangxue An

14:00 - 14:20  Analysis of Unbalanced Magnetic Pull in a multi-pole model of induction machine with an eccentric rotor

- Xiaomei Li

14:40 - 15:00  Development of a Patent System Using Augmented Reality and 360-degree Camera

- Prof. Xiaoli He

14:40 - 15:00  Acoustic Emission Monitoring for Heating Failure of Laminated Glass

- Prof. Yuli Li

14:40 - 15:00  Using a Degradation Progression Signature (DPS) to Lower the Condition-Based State to Improve the Accuracy of Predictive Maintenance Information

- James Mafudze

14:40 - 15:00  Efficiency and durability of concrete with surface coatings and surface machining

- Shuwen Shao

15:00 - 15:20  Specific small digital twins for turbomachinery engines

- Prof. Xiaoli He

15:00 - 15:20  The Study of Acoustic Emission Technology in Suspension Structures

- Prof. Xiaoli He

15:00 - 15:20  Can-I: real source identification by inverse problem analysis of infrared measurement data

- C. Melchers

15:00 - 15:20  Real-Time-based Integrated Wireless Sensor Network for Non-Destructive Monitoring and Evaluation of On-Site Concrete Structures

- Prof. Xiaoli He

15:00 - 15:20  Monitoring Method of Stress State of Tubular Tower

- Prof. Xiaoli He

15:00 - 15:20  Three-dimensional reconstruction of metal gas cloud image based on computer tomography processing of multiple optical path infrared measurement data

- Prof. Xiaoli He

15:20 - 16:00  Coffee

16:00 - 16:20  Keynote Presentation

16:00 - 16:20  Application of Acoustic Emission Monitoring in Windtower

- Prof. Xiaoli He

16:20 - 16:40  Keynote Presentation

16:20 - 16:40  Future of Condition Monitoring in Windturbines

- Prof. Xiaoli He

16:40 - 17:00  Keynote Presentation

16:40 - 17:00  Challenges and Opportunities of Acoustic Emission Monitoring in Windturbines

- Prof. Xiaoli He

17:00 - 17:20  Keynote Presentation

17:00 - 17:20  Acoustic Emission Monitoring for Heating Failure of Laminated Glass

- Prof. Yuli Li

17:20 - 17:40  Keynote Presentation

17:20 - 17:40  Analysis of Unbalanced Magnetic Pull in a multi-pole model of induction machine with an eccentric rotor

- Xiaomei Li

17:40 - 18:00  Keynote Presentation

17:40 - 18:00  Development of a Patent System Using Augmented Reality and 360-degree Camera

- Prof. Xiaoli He

18:00 - 20:00  Gala Dinner: Heavenly Ballroom
## Programme

### Day 4  
5th December 2019  
Thursday

<table>
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<tr>
<th>TIME</th>
<th>SESSION</th>
<th>PROGRAMME</th>
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<tr>
<td>08:00 - 08:45</td>
<td>MobiTEX Boon Foo</td>
<td>Registration</td>
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| 09:00 - 09:45 | Orchard Room 4201A&B & 4202 | Keynote Presentation  
  Reflections on vibration-based condition monitoring under variable operating conditions  
  Prof. Stephen Myke [C4] |
| 09:45 - 10:30 | Orchard Room 4201A&B & 4202 | Keynote Presentation  
  Compressive sensing-based blade tip timing data reconstruction for non-contact blade vibration monitoring in turbomachinery  
  Prof. Puhu Chi [C6.3] |
| 10:30 - 11:00 | Orchard Room 4302 | Coffee |

### Condition Monitoring of Machine Elements

<table>
<thead>
<tr>
<th>TIME</th>
<th>ORCHID ROOM 4201A&amp;B</th>
<th>ORCHID ROOM 4302</th>
<th>ORCHID ROOM 4202</th>
<th>ORCHID ROOM 4203</th>
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</table>
| 11:00 - 11:30 | On-line monitoring of rotor seal rub in steam turbines  
  Jindrich Laha | A two-dimensional simulation of thermosonic laser ultrasound process  
  Farhang Hormoover | | |
| 11:30 - 12:00 | Transient and steady-state analysis for boiler rotor bar fault detection using wavelet and entropy methods  
  Amrit Singh | Novel higher order spectral techniques for condition monitoring and NDT  
  I. Geibow, A. Ball | | |
| 12:00 - 12:30 | Induction Motor Fault Analysis using Vibration and Motor Current Signature  
  Surendra Suri Gautamdhali | Weld Inspection of Piping Elbow Using Flexible PAUT Probe  
  Abhishek Park | | AIPNDT Board Meeting |
| 12:30 - 13:00 | Scanning an Acoustic Field to Locate a Fault in a Pneumatic Bearing System  
  Mark Shanahan | Condition Monitoring of Structures in Hostile Environment Using Wearable Sensors  
  Muhammad Aamir Ansari | | |
| 12:30 - 13:00 | Laser Ultrasonic Imaging of Welded Spinal Gradients for Damage Detection  
  Mahdi Toosi | | | |
| 13:00 - 14:00 | Lunch | | | |

### Condition Monitoring for Bearings

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<tr>
<th>TIME</th>
<th>ORCHID ROOM 4201A&amp;B</th>
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<th>ORCHID ROOM 4202</th>
<th>ORCHID ROOM 4203</th>
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</thead>
</table>
| 14:00 - 14:30 | Defect Severity Measurement in Rolling Element Bearings  
  Iain Epps | Non-destructive testing for heat damaged composites  
  Chun Yong, Andrew Ngo | | |
| 14:30 - 15:00 | Understanding the Influence of the Load Zone on the Vibrations Excited by Shunt Faults in Rolling Element Bearings  
  Iain Epps | Feasibility study of infrared thermography technique for paint thickness non-uniformity inspection  
  Vinod Kumar S/S Division | | AIPNDT Workshop |
| 14:30 - 15:00 | Prognostics of rolling element bearings based on early stage developing faults  
  Mohamma Mourisser Yeddi | Experimental Analysis on Fault Prediction of AC contactor  
  by Infrared Thermography  
  Yue Fu | | NDTSS Certification Workshop |
| 15:00 - 15:30 | Bearing anomaly detection based on generative adversarial network  
  Jian Dai | Research on the Detecting Method of Motor Running State  
  Measurement Device Based on Infrared Thermography Technology  
  Jianjue Zhang | | AIPNDT Workshop |
| 15:30 - 16:00 | Bearings Fault Diagnosis in Electromechanical Systems using Transient Motor Current Signature Analysis  
  Vakkanter Nandanjan | | | |
| 15:40 - 16:10 | Coffee | | | |
| 16:00 - 16:30 | Collection of certificates | | | |