### Program Surveillance 9

**Monday 22 May, 2017**

#### Registration
8:30 - 9:30

#### Welcome plenary session (30’)
10:00 - 10:30

**Keynote lecture: A Cruise through Signal Processing (50’)**  
*Mohamed Najim, Université de Bordeaux, France*

#### Coffee break and late registration
10:50 - 11:20

---

### ORAL SESSIONS

#### Condition Monitoring
Chair: Bob Randall

- **11:20**
  - **Cost-effective (non-contact) ultrasound system for bearing fault diagnostics:** Development, Validation and Benchmark  
  *Agusman Ompusunggu*

- **11:40**
  - **Condition monitoring of gear grinding processes**  
  *Konstantinos Gryllias, Bovic Kilundu, Steven Devos, Yann Vonderscher, Bart Vandewal*

- **12:00**
  - **The effect of gear tooth surface quality on diagnostic capability,** Ido Dadon Renata Klein, Jacob Bortman

- **12:20**
  - **Using optical fiber sensors for health monitoring of rotational systems,** Shlomi Konforty, Bortman Jacob, Renata Klein, Tur Moshe, Ben-Simon Uri

#### Vibration models
Chair: Alessandro Rivola

- **11:20**
  - **On the use of diagnostic forces applied on rotating machines for crack detection**  
  *Niccolò Bachschmid*

- **11:40**
  - **Frequency modulations in a multiphysic model of an induction motor applied to the diagnosis of bearings using MCSA**  
  *Aroua Fourati, Adeline Bourdon, Didier Rémont, Nabih Feki, Fakhre Chaari, Mohamed Haddar*

- **12:00**
  - **Prediction of Vibration of planetary gear – Improvement of variable vibration transmission path modelling**  
  *Fakher Chaari*

- **12:20**
  - **Dynamics analysis and experiment research of casing vibration response for rotating machinery under rubbing fault**  
  *Nanfei Wang, Dongxiang Jiang*

---

### ORAL SESSIONS

#### Signal Processing (nonstationary regimes)
Chair: Cécile Capdessus

- **15:00**
  - **Planet bearing diagnostics under variable speed operation**  
  *Robert Randall, Wade Smith, Xavier de Chasteigner du Mée, Zhongxiao Peng*

- **15:20**
  - **Demodulation of vibration signals generated by defects in rolling element bearings under variable speed using morphological analysis and complex shifted morlet wavelets**  
  *Konstantinos Gryllias, Ioannis Antoniadis, Christos Yiakopoulos*

- **15:40**
  - **Perceptive analysis of bearing defects "Contribution to vibratory monitoring of bearings"**  
  *Nacer Hamzaoui, Abdelkader Laissaoui, belaid bouzouane, Abdelhamid Miloui*

- **16:00**
  - **Vibration based fault detection under variable non-measurable operating conditions via a stochastic Functional Model method and application to railway vehicle suspensions**  
  *Sakellariou John, Aravanis Tryfon-Chrysovalantis, Fassios Spillos*

#### SHM, Modal Analysis, Identification
Chair: Nicolò Bachschmid

- **15:00**
  - **Experimental vibration analysis of a rotary transfer machine for the manufacture of lock components**  
  *Alberto Martini, Marco Troncossi, Alessandro Rivola, Niccolò Vincenzi*

- **15:20**
  - **Damping contribution of coatings to the viscoelastic behaviour of materials**  
  *Amadori Stefano, Catania Giuseppe*

- **15:40**
  - **Fatigue crack detection based on changes of the structure vibration characteristics**  
  *Raissa De Melo Brandao, François Girardin, Nacer Hamzaoui, Pascal Vouagner, Thierry Mazoyer*

- **16:00**
  - **Fault diagnosis in a railway vehicle suspension based on vertical vibration measurements and an advanced functional model method**  
  *John Sakellariou*

---

### LUNCH
12:40 - 14:00

**Keynote lecture: Industrial application of SHM: How can we help industries to adopt new techniques? (50’)**  
*Dmitri Tcherniak, Bruel & Kjaer, Denmark*

---

### ORAL SESSIONS

#### Signal Processing / Classification
Chair: Quentin Leclère

- **16:20**
  - **Signal Processing / Classification**  
  *Chair: Quentin Leclère*

#### Classification
Chair: Jérôme Antoni

- **16:20**
  - **Classification**  
  *Chair: Jérôme Antoni*
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>17:00</td>
<td>Detection and Estimation of Variable Speed Vibration Signal Parameters using Adaptive Quadratic Phase Transform&lt;br&gt;Karim Abed-Merim, Cécile Capdessus</td>
</tr>
<tr>
<td>17:20</td>
<td>Influence of speed fluctuation on cepstrum&lt;br&gt;Frédéric Bonnardot</td>
</tr>
<tr>
<td></td>
<td>ANOVA and other statistical tools for bearing damage detection&lt;br&gt;Alessandro Daga, Luigi Garibaldi, Alessandro Fasana, Stefano Marchesiello</td>
</tr>
</tbody>
</table>

19:00 Shuttle to APERITIF

APERITIF AT SPECIAL RYIAD WITH VIEW

21:00 Shuttle to Hotel
**Tuesday 23 May, 2017**

**Case Studies**  
**Chair: Mohamed El Badaoui**  
**10:20**  
Instrumentation and diagnosis on a vacuum pump - ARPE Project  
Renaud Bertoni

**Signal Processing for Diagnostics**  
**Chair: Gianluca d’Elia**  
**10:20**  
Comparison between some psychoacoustic metrics and the spectral coherence for a better diagnosis of domestic motors, Amani Raad, Issam Zock, Jérôme Antoni

The vibratory diagnosis of gearboxes with latest tools developed by Dynae: the gear processing module  
Xavier Thomas, Francois Combet

**10:40**  
Harmonic Product Spectrum revisited and adapted for rotating machine monitoring based on IAS  
Hugo Andre, Ilyes Khelf, Quentin Leclère

**11:00**  
ALGORITHMS AND STRATEGIES FOR THE DIAGNOSTICS OF ROLLING ELEMENT BEARINGS IN A LOCOMOTIVE OF REGIONAL TRAINS  
Chatterton Steven, Pennacchi Paolo, Vania Andrea

**11:20**  
Studies of case on turbo-alternators  
Henri Campagna

**11:40**  
Discrete Random Sampling: Theory and Practice  
Hajar Mayssa, Mohamad El Badaoui, Amani Raad, Frédéric Bonnardot

**LUNCH**

**ORAL SESSIONS**

**Monitoring**  
**Chair: Renata Klein**

**13:00**  
Tool life prediction using symptom reliability and vibration signal in milling process of ST-52-3 steel  
Bovic Kilundu, Innocent Mpia

**13:20**  
Step-by-step algorithm for the simulation of a faulted gearbox  
D’Elia Gianluca, Cocconcelli Marco, Rubini Riccardo, Dalpiaz Giorgio

**13:40**  
Investigative techniques for detecting torsional stresses of shaft lines of a ball mill  
Mounir Lahlimi, Xavier Thomas

**14:00**  
Coffee break  

**POSTER SESSION**

**14:20**  
Debriefing of SAFRAN Contest (une heure)

**Monitoring**  
**Chair: Frédéric Bonnardot**

**15:20**  
Condition monitoring of rotating machinery based on acoustic imaging, Edouard Cardenas, Nacer Hamzaoui, Quentin Leclère, Jérôme Antoni, Konstantinos Gryllias

**15:40**  
A review on the instantaneous angular speed estimation with application to an aircraft engine  
Edgar F. Sierra-Alonso, Jérôme ANTONI, German Castellanos-Dominguez

**Bearing Diagnostics / Tool Wear**  
**Chair: Amani Raad**

**15:20**  
Misalignment cases on machine trains of CC Power Plants  
Francesco Miniello, Nicolas Peton

**15:40**  
Using Unbiased Autocorrelation to Enhance the Envelope Analysis Results for Rolling Element Bearing Diagnostics  
Ali Moshrefzadeh, Alessandro Fasana, Luigi Garibaldi

**16:00**  
Shuttle to guided visit to Medina (English and French)

**18:30**  
Shuttle to Hotels
Wednesday 24 May, 2017

**ORAL SESSIONS**

**Current Signature Analysis / NDT**
*Chair: Riccardo Rubini / Marco Cocconcelli*

- 9:20 Monitoring of bearing damage based on joint exploitation of the current signals and the instantaneous angular speed signals<br>Ali Bouzndag, Mohamed El Badaoui, Soumia Elhani
- 9:40 Study of the faults Severity Progression in Induction Machines for Conditional Maintenance Purposes<br>Lahbib Sadiki
- 10:00 Automotive HVAC total NVH quality from design to vehicle integration<br>Said Naji, Sebastien Goude, Darius Kurniawan
- 10:20 Acoustic analysis and Modeling of the Group Velocity of Acoustic circumferential wave by an Adaptive Neuro-Fuzzy Inference System (ANFIS)<br>Youssef Nahraoui
- 10:40 Moving sensor approach for cracks detection in plates<br>Hajar Chouiyakh, Lahcen AZRAR, Khaled Alnefaie, Omar Akourri

---

**POSTERS (presented on Tuesday 23, 12:30)**

- Extension of the predictive policy to a series of mechanical systems<br>Giuseppe Curcurù, Marco Cocconcelli, Riccardo Rubini, Giacomo Galante
- Effect of Coupling Types on Rotor Vibration,<br>Ronak Prajapati
- Development of a system based on a neural network for faults monitoring of a gearbox<br>Samir KHAMEL, Nouredine Ouelaa, Khaider Bouacha
- Cyclic Analysis and Modelling of Faulty Bearing Signals<br>Anas Had, Khalid SABRI
- System monitoring and maintenance policies: a review<br>Giuseppe Curcurù, Marco Cocconcelli, Riccardo Rubini, Giacomo Galante
- Bayesian approach in the predictive maintenance policy<br>Giuseppe Curcurù, Marco Cocconcelli, Riccardo Rubini, Giacomo Galante