# 9th EDF/Pprime (LMS) Poitiers Workshop *FUTUROSCOPE – October 7 & 8, 2010*

# *"Improvement of Bearing Performance and Evaluation of Adverse Conditions"*

| Thursday October 7, 2010 | |
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| 8h00-8h40 | ***Registration*** |
| 8h40-9h00 | ***General introduction by EDF/Pprime – Presentation of the program*** |
| 9h00-9h40 | **Keynote session**<br>**A)** ***"Hydrodynamic bearing damage and remediation of contributing factors in rotating machinery"***<br>**Mr. Barry Blair[a] and Dr. Guy Pethybridge[b],**<br>[a]Chief Engineer, *Waukesha Bearing Corp*, USA [b]Global Product Manager, *Waukesha Bearing Ltd*, UK |
| 9h40-9h50 | ***Questions*** |
| 9h50-10h00 | ***Presentation of the posters*** |
| 10h00-10h30 | ***Coffee Break - POSTER Session*** |
| 10h30-11h00 | **Technical session 1: Advanced technology and bearing improvement**<br>**B)** ***"Improved performance of hydrodynamic bearings by proactive adjustment"***<br>**Martin J.K.,** *The Open University*, UK. |
| 11h00-11h30 | **C)** ***"On the future of controllable fluid film bearings"***<br>**Santos I.F.,** *Technical University of Denmark*, Denmark. |
| 11h30-12h00 | **D)** ***"Effects of oil supply flow rate and oil spray nozzle design on tilting pad journal bearing performance"***<br>**Hanahashi M., Kawaike K. and Uesato M.,** *Daido Metal Co*, Japan. |
| 12h15-13h45 | ***Lunch*** |
| 14h15-14h45 | **Technical session 2: Bearing seizure and wear**<br>**E)** ***"Modeling and prediction of a simplified seizure mechanism occurring in conrod bearing"***<br>**Ligier J-L. and Dutfoy L.,** *Renault*, France. |
| 14h45-15h15 | **F)** ***"Clearance and lubricant selection for avoiding seizure in a CGJB based on a lumped model analysis"***<br>**Cristea A.F.[a,b], Pascovici M.D.[a] and Fillon M.[b],** [a]*University Polytehnica of Bucharest*, Romania, [b]*Institut Pprime*, France. |
| 15h15-15h45 | **G)** ***"Proposal and application of wear model in hydrodynamic metal-polymer bearings"***<br>**Thomsen K. and Klit P.,** *Technical University of Denmark*, Denmark. |
| 15h45-16h30 | ***Coffee Break - Discussions - POSTER Session*** |
| 16h30-17h00 | **Technical session 3: Bearing performance under adverse operating conditions**<br>**H)** ***"Performance degradation in scratched journal bearings"***<br>**Dobrica M.B.[a] and Fillon M.[b],** [a]*Tecnitas*, France, [b]*Institut Pprime*, France. |
| 17h00-17h30 | **I)** ***"Use of EDYOS at EDF's engineering division in the steam turbine domain"***<br>**Gaudin M. and Martinal H.,** *EDF Septen*, France. |
| 17h30-18h00 | **J)** ***"Balancing with the presence of a rub"***<br>**Péton N.,** *General Electric*, France. |
| 18h15 | ***Cocktail*** |

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# *"Improvement of Bearing Performance and Evaluation of Adverse Conditions"*

## Friday October 8, 2010

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|---|---|
| 8h30-9h00 | ***Registration - Coffee*** |
| 9h00-9h30 | **Technical session 4: Bearing with PFTE or PEEK layer**<br>**K)** ***"The advantages of PTFE journal bearing technology for marine propulsion applications"***<br>**Dixon S.J.[a], Waggott J.[a] and Simmons J.E.L.[b],** *[a]Rolls-Royce Newcastle,* UK, *[b]Heriot-Watt University, UK.* |
| 9h30-10h00 | **L)** ***"The effect of PTFE lining on plain journal bearing characteristics"***<br>**Kuznetsov E.[a], Glavatskih S.[a] and Fillon M.[b],** *[a]Lulea University of Technology,* Sweden, *[b]Institut Pprime,* France. |
| 10h00-10h30 | ***Coffee Break - POSTER Session*** |
| 10h30-11h00 | **Technical session 5: Thrust bearings**<br>**M)** ***"Large hydrodynamic thrust bearing – comparison of the theoretical prediction and measurements"***<br>**Wodtke M.[a], Schubert A.[b], Fillon M.[c], Wasilczuk M.[a] and Pajaczkowski P.[a,b],** *[a]Gdansk University of Technology,* Poland, *[b]ALSTOM Hydro,* Switzerland, *[c]Institut Pprime,* France. |
| 11h00-11h30 | **N)** ***"Integral measuring ring for tilting pad thrust bearings"***<br>**Beneke R. and Klein U.,** *John Crane Bearing Technology GmbH,* Germany. |
| 11h30-12h00 | **O)** ***"Centrally pivoted tilting pad thrust bearing with inlet and outlet tapers – measurements vs. TEHD investigations"***<br>**Pajaczkowski P., Schubert A. and Brescianini T.,** *ALSTOM Hydro,* Switzerland. |
| 12h00-12h15 | ***Assessment - Discussion*** |
| 12h30-14h00 | ***Lunch*** |

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| 14h00-17h00 | ***Motor and bike museum (please register for participation)*** |

## POSTER SESSION - October 7 & 8 2010

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| 10h00-10h30 & 15h45-16h30 | **P)** ***"XRF analysis applied to cast babbitt"***<br>**Branaghan L.A.,** *Pioneer Motor Bearing,* USA.<br>**Q)** ***"Cavitation test according to ASTM G32"***<br>**Chen Y-M., Tessier J-J. and Caze D.,** *CETIM,* France.<br>**R)** ***"Modeling of the wave journal bearing dynamic behavior with a non-linear transient analysis"***<br>**Ene N., Dimofte F. and Afjeh A.,** *University of Toledo,* USA.<br>**S)** ***"Numerical modelling of hydrostatic lift pockets in hydrodynamic journal bearings – Application to low speed working conditions of highly loaded tilting pad journal bearings"***<br>**Raud X.[a], Fillon M.[b] and Helene M.[a],** *[a]EDF R&D,* France, *[b]Institut Pprime,* France.<br>**T)** ***"Design of a test rig for tilting-pad journal bearings"***<br>**Pennacchi P., Chatterton S., Ricci R. and Vania A.,** *Politecnico di Milano,* Italy.<br>**U)** ***"Identification of heat flow through the pad in hydrodynamic and hydrostatic operation of thrust bearing"***<br>**Lang M.[a], Dąbrowski L.[b] and Wasilczuk M.[b],** *[a]Andritz Hydro GmbH,* Austria, *[b]Gdansk University,* Poland.<br>**V)** ***"Impact of lubricant contamination with water on hydrodynamic thrust bearing performance"***<br>**Harika E.[a,b], Hélène M.[a], Bouyer J.[b] and Fillon M.[b],** *[a]EDF R&D,* France, *[b]Institut Pprime,* France.<br>**W)** ***"Influence of geometric imperfections on tapered roller bearings life and performance"***<br>**Rodríguez R.[a], Nadal I.[a] and Santo Domingo S.[b],** *[a]Instituto Tecnológico de Aragón, Spain, [b] FERSA Bearings S.A, Spain* |