

**BALTICA IX - International Conference on
Life Management and Maintenance for Power Plants
Helsinki - Stockholm – Helsinki, 11-13 June, 2013**

Programme



Photo: TVO



**BALTICA IX - International Conference on
Life Management and Maintenance for Power Plants
Helsinki - Stockholm – Helsinki, 11-13 June, 2013
<http://baltica.vtt.fi>**

Monday 10 June, Helsinki

18.00 - 20.00 **Get together event, Helsinki Exhibition & Convention Centre (Messuaukio 1, Helsinki)**

**Tuesday 11 June , Helsinki
MS Mariella**

9.30 - **Registration, Viking Line terminal (Katajanokka, South Harbour, Katajanokanlaituri 8 (Mastokatu 1)), Helsinki**

11.00 **MS Mariella (ship arrives 10.10)
Welcoming address, Rauno Rintamaa, VTT
Conference opening, Ari Laine, Helsingin Energia**

Session 1 Introductory keynotes

11.15 Development of future power plants – demand and challenges
*R. Blum
Dong Energy (rtd), Denmark*

11.45 Risk-Based Inspection (RBI) in fossil-fuel fired power plants: Developing further the EU approach and applying it in the large-scale projects
A. Jovanovic, J. M. Bareiss */**, P. Stanojevic */***, Liu Yan */*****
** Steinbeis Advanced Risk Technologies, Stuttgart, Germany*
*** EnBW, Stuttgart, Germany*
**** Ministry of Energy, Serbia, NIS-GazpromNeft, Serbia (formerly)*
***** BMLIP, Beijing, China*

12.15 Similitude of residual stresses and the warm pre stress effect
*K.R.W. Wallin
VTT, Espoo, Finland*

12.45 Lunch, Buffet (deck 7)

Tuesday 11 June , Helsinki
MS Mariella

| Session 2 | Nuclear plant | Session 3 | Combustion plant |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 13.45 | French Ageing Management Program in connection with IAEA Safety Guides <i>C. Faidy</i> <i>AFCEN EDF, France</i> | 13.45 | Qualification of structural materials for the advanced 700 C fossil fired power plant - experience gained in the GKM field test loops <i>K. Maile*</i> , <i>S. Zickler*</i> , <i>K. Metzger**</i> * <i>Materialprüfungsanstalt Universität Stuttgart, Germany</i> ** <i>Grosskraftwerk Mannheim, Germany</i> |
| 14.05 | Fatigue of stabilised steel in NPP primary piping - discussion on design curves <i>J. Solin</i> <i>VTT, Espoo, Finland</i> | 14.05 | Creep-fatigue properties of nickel-base superalloy 263 <i>R. Pohja, A. Nurmela, S. Holmström, P. Moilanen</i> <i>VTT, Espoo, Finland</i> |
| 14.25 | Effect of initial flaw and load assumptions on risk estimate changes <i>O. Cronvall</i> <i>VTT, Espoo, Finland</i> | 14.25 | Fireside corrosion of Ni-based alloys in simulated co-firing combustion environment <i>T. Hussain, N.J. Simms, J.E. Oakey</i> <i>Cranfield University, UK</i> |
| 14.45 | NB-3650M fatigue calculation procedure <i>P. Smeekes*</i> , <i>E. Torkkeli**</i> , <i>M. Perklén**</i> , <i>O. Cronvall***</i> * <i>Teollisuuden Voima, Olkiluoto, Finland</i> ** <i>FEMdata, Espoo, Finland</i> *** <i>VTT, Espoo, Finland</i> | 14.45 | Degradation of single-crystal gas turbine blades <i>P. Jauhiainen, J. Rantala, J. Salonen, S. Yli-Olli, S. Holmström</i> <i>VTT, Espoo, Finland</i> |
| 15.05 | Coffee (cabins available) | 15.05 | Coffee (cabins available) |

Tuesday 11 June , Helsinki
MS Mariella

| Session 2 (continues) | Nuclear plant | Session 3 (continues) | Combustion plant |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15.50 | Weld repair simulation for the mock-up 2 of EU FP7 STYLE project <i>H. Keinänen</i> <i>VTT, Espoo, Finland</i> | 15.50 | Evaluation of creep damage in martensitic 9-10%Cr-steel components <i>S. Zickler, K. Maile</i> <i>Materialprüfungsanstalt Universität Stuttgart, Germany</i> |
| 16.10 | Fracture mechanical characterisation of ferrite-austenite dissimilar metal welds (DMWs) for elevated temperature service in view of metallurgical mis-match <i>P. Nevasmaa*, P. Holmström***, P. Karjalainen-Roikonen*, T. Sarikka**, M. Ahonen*, R. Mougnot**, U. Ehrnstén*, A. Brederholm**, P. Aaltonen*, H. Hänninen**</i> <i>* VTT, Espoo, Finland</i> <i>** Aalto University, Espoo, Finland</i> <i>*** Teollisuuden Voima, Olkiluoto, Finland</i> | 16.10 | Influence of boiler operating conditions to component lifetime, case study: pulverized coal burner <i>J. Meskanen</i> <i>Fortum, Espoo, Finland</i> |
| 16.30-16.50 | Oxidation and SCC susceptibility of ODS steels in supercritical water <i>A. Toivonen, S. Penttilä</i> <i>VTT, Espoo, Finland</i> | 16.30-16.50 | High temperature multiaxial component testing and modelling for the prediction and monitoring of creep-fatigue behaviour <i>A. Kranz*, C. Davies**, J. Corcoran**, P. Hooper**, J. Dear**, P. Cawley**</i> <i>* TÜV Rheinland Werkstoffprüfung, Köln, Germany</i> <i>** Imperial College London, UK</i> |
| 17.30 | Ship leaving for Stockholm | | |
| 18.00-20.00 | Sauna (towels, drinks included, deck 2) | | |
| 21.00 | Conference Dinner, Food Garden restaurant (deck 7) | | |

Wednesday 12 June, Stockholm
(Viking Line terminal, Stadsgården, Tegelvikshamn)
MS Mariella

| Session 4 | Nuclear plant | Session 5 | Combustion plant |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9.00 | Creep properties of Zircaloy-4 for nuclear fuel cladding FEA simulation <i>S. Holmström, T. Andersson, V. Tulkki, A. Laukkanen</i> <i>VTT, Espoo, Finland</i> | 9.00 | COOP – A powerful tool to meet the challenges of power plant flexibilization <i>S. Goers*, D. Rieck**, A. Schulz***, R. Wernicke***</i> <i>* TÜV NORD Sweden, Hamburg, Germany</i> <i>** IGN Ingenieurgesellschaft Nord, Greifswald, Germany</i> <i>*** TÜV NORD Systems, Hamburg, Germany</i> |
| 9.20 | New applications of pneumatically powered testing equipment for extreme environments <i>P. Moilanen*, S. Holmström*/**, R. Novotny**, P. Hähner**, K-F. Nilsson**</i> <i>* VTT, Espoo, Finland</i> <i>** EC, JRC-IET, Petten, The Netherlands</i> | 9.20 | Risk assessment of power station production unit <i>J. Markova, M. Holicky, M. Sykora</i> <i>CTU in Prague, Klokner Institute, Czech Republic</i> |
| 9.40 | Evaluation of the ductile-brittle transition temperature in the NESC-I material using small punch testing <i>K. Turba*/***, R. Hurst **, P. Hähner *</i> <i>* EC, JRC, Petten, The Netherlands</i> <i>** Swansea University, UK</i> <i>*** Lund University, Sweden</i> | 9.40 | A material solution against fireside chloride corrosion <i>S. Yli-Olli, T. Suhonen, J. Virta, S. Holmström, T. Varis, S. Tuurna, T. Kinnunen</i> <i>VTT, Espoo, Finland</i> |
| 10.00 | Coffee | 10.00 | Coffee |

**Wednesday 12 June , Stockholm
MS Mariella**

| Session 4 (continues) | Nuclear plant | Session 5 (continues) | Combustion plant |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10.30 | 30 years of Experience in Structural Integrity: lessons learned and recommendations <i>C. Faidy</i> <i>AFCEN EDF, France</i> | 10.30 | Investigations of superheater materials from Nordjyllandsværket coal-fired plant after 100.000 hours service <i>L. Korcakova, M. Montgomery, H.T. Jensen</i> <i>Vattenfall, Copenhagen, Denmark</i> |
| 10.50 | Forecast reliability of embrittlement trend curves for Swedish nuclear reactor pressure vessel steels <i>C. Larsson*, M. Molin **, N.E. Hannerz *</i> <i>* Royal Institute of Technology, Stockholm, Sweden</i> <i>** Forsmarks Kraftgrupp, Östhammar, Sweden</i> | 10.50 | Assessment of remaining lifetime of the boiler tube and microstructure analysis <i>Z. Bunda, J. Volak, E. Chvostova</i> <i>Research and Testing Institute Plzeň, Czech Republic</i> |
| 11.10 | Application of Alloy 690 and associated weld metals in PWRs <i>H. Hänninen</i> <i>Aalto University, Espoo, Finland</i> | 11.10 | Long term and pilot study of HAZ creep behaviour of weld repaired low alloyed heat resistant steels <i>R. Wu*, J. Storesund**</i> <i>* Swerea KIMAB, Kista, Sweden</i> <i>** Inspecta Technology, Stockholm, Sweden</i> |
| 11.30 | Lunch, Buffet (deck 7) | 11.30 | Lunch, Buffet (deck 7) |
| 12.40 – 15.00 | Visit to Fortum's CHP plant Hammarby / Högdalen Stockholm | 12.40–15.00 | Visit to Fortum's CHP plant Hammarby / Högdalen Stockholm |

**Wednesday 12 June , Stockholm
MS Mariella**

| Session 4 (continues) | Nuclear plant | Session 5 (continues) | Combustion plant |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15.00 | Coffee | 15.00 | Coffee |
| 15.30 | Performance of copper overpack for repository canisters <i>J. Rantala, P. Auerkari, S. Holmström, A. Laukkanen, T. Andersson VTT, Espoo, Finland</i> | 15.30 | Structural integrity management of a mixed fleet of power-generation boilers: a systematic, utility-wide approach <i>J.M. Brear, P. Jarvis Stress Engineering Services (Europe), Chichester, UK</i> |
| 15.50 | The effect of sulphide exposure on the mechanical behaviour of OFP copper <i>K. Sipilä, E. Arilahti, T. Lehtikuusi, T. Saario, P. Varis VTT, Espoo, Finland</i> | 15.50 | Corrosion resistance of Kanthal A-1 and Fe-12Cr-2Si alloy coatings in Cl-containing environment <i>T. Sarikka*, R. Ilola*, R. Pohja**, H. Hänninen* * Aalto University, Espoo, Finland ** VTT, Espoo, Finland</i> |
| 16.10 | NDE of the disposal canisters <i>A. Koskinen*, T. Jäppinen*, M. Sarkimo*, A. Lipponen*, J. Haapalainen*, S. Sandlin*, E. Leskelä*, J. Pitkänen** * VTT, Espoo, Finland ** Posiva, Eurajoki, Finland</i> | 16.10 | Corrosion and carburization of superheater materials in oxyfuel combustion <i>S. Tuurna, S. Yli-Olli, P. Pohjanne VTT, Espoo, Finland</i> |
| 16.30 | Additional presentation and discussion : Workplan of the WG10 of CEN/TC138:Non-Destructive Testing – XRD from polycrystalline and amorphous materials <i>G. Berti University of Pisa, Italy</i> | 16.30-16.50 | Self-heating and autoignition of coal in rock silos <i>J. Sipilä*, P. Auerkari**, S. Holmström**, J. Itkonen*, U. Krause***, I. Vela****, M. Löscher***** * Helsingin Energia, Finland ** VTT, Espoo, Finland *** Otto-von-Guericke-University, Magdeburg, Germany **** BAM, Berlin, Germany ***** EU-VRI, Stuttgart, Germany</i> |
| 16.30 | Ship leaving for Helsinki | 16.30 | Ship leaving for Helsinki |
| 19.00 | Dinner, Buffet (deck 7) | 19.00 | Dinner, Buffet (deck 7) |

Thursday 13 June
Helsinki Exhibition & Convention Centre (Messuaukio 1, Helsinki)

10.10 Arrival at Helsinki
 10.35 Bus transport to Helsinki Exhibition & Convention Centre

Session 6 Cross-cutting issues: methods of condition assessment

11.00 A renaissance in Small Punch Testing at Swansea University
R.C. Hurst, R. Lancaster, G. Norton, R. Banik, M.R. Bache
Swansea University, United Kingdom

11.20 Practical application of impression creep data to power plant
S.J. Brett, J.H. Rantala**, S. Holmström***
 * *Nottingham University, United Kingdom*
 ** *VTT, Espoo, Finland*

11.40 “On site” X-ray diffraction method to observe the creep
 phenomenon and its propagation at the nano-scale
*G. Berti */**, F. De Marco**, M.E. Del Seppia***
 * *University of Pisa, Italy*
 ** *XRD-Tools s.r.l, Pisa, Italy*

12.00 Lunch

Session 7 Combustion plant

11.00 Experience in integrity assessment of steam turbine casings
 operated beyond the design lifetime
A. Dedov, I. Klevtsov, T. Lausmaa
Tallinn University of Technology, Estonia

11.20 Evaluation of mechanical properties and microstructure of
 dissimilar weld joint of COST F and FB2 steels after long term
 creep test
J. Kasl, D. Jandová*, E. Chvostová*, E. Folková***
 * *Research and Testing Institute Plzeň, Czech Republic*
 ** *Doosan Škoda Power s.r.o., Plzeň, Czech Republic*

11.40 Determination and solution of power plant furnace problems
 with pilot-scale studies
H. Nevalainen, M. Aho
VTT, Jyväskylä, Finland

12.00 Lunch

Thursday 13 June
Helsinki Exhibition & Convention Centre

| Session 6 (continues) | Cross-cutting issues: methods of condition assessment | Session 7 (continues) | Combustion plant |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 13.30 | Differences in defect indications of three artificially produced defects in ultrasonic inspection <i>A. Koskinen, E. Leskelä</i> <i>VTT, Espoo, Finland</i> | 13.30 | New model for steam oxidation of power plant steels <i>S. Yli-Olli, S. Holmström, P. Auerkari, S. Penttilä</i> <i>VTT, Espoo, Finland</i> |
| 13.50 | Detection of magnetite piles on steam generator tubing with eddy current method <i>T. Jäppinen, K. Lahdenperä</i> <i>VTT, Espoo, Finland</i> | 13.50 | Coating solutions against high temperature corrosion – performance validation and feasibility at biomass fired boilers <i>M. Oksa, J. Kärki, J. Metsäjoki</i> <i>VTT, Espoo/Jyväskylä, Finland</i> |
| 14.10 | Model assisted calculations for NDE reliability <i>J. Haapalainen, E. Leskelä</i> <i>VTT, Espoo, Finland</i> | 14.10 | Life in plant - challenges and solutions <i>P. Auerkari*</i> , <i>J. Salonen*</i> , <i>S. Holmström*</i> , <i>J. Viuhko**</i> , <i>A. Lokkiluoto**</i> <i>* VTT, Espoo, Finland</i> <i>** Helsingin Energia, Finland</i> |
| 14.30-15.00 | Conference closure, Pertti Auerkari, VTT | | |
| 15.00 | Coffee | | |