



MFPT 



Complete MFPG/MFPT Proceedings Listing

1967 - 2013

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Theme: First Meeting

Organizational Meeting

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Lifecycle Approach to the Construction of Critical Communication Service

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New Directions for 'Forum', the MFPT Newsletter

Raj Bharadwaj

Diagnostics & Signal Analysis Committee Overview

Howie Gaberson

Failure Analysis Committee Overview

Marc Pepi

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Communication and Accountability Are the Keys to Success in Condition-Based Maintenance

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The Repair of Magnesium Rotorcraft Components by Cold Spray

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Self-Healing and Fault Accommodation for Power Electronics and Motor Drives

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Health Management Strategy for Electronic Power Distribution Systems

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Advanced Electronic Prognostics for Integrated Circuits

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Pseudo Velocity Shock Spectrum Rules and Concepts

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Adaptive Energy Harvesting for Machinery Condition Monitoring

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Advanced Sensor Development for Propulsion Health Monitoring

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Dynamic Sensor Measurements with Wireless Instrumentation

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The Development of an Embedded Thin-Film Sensor for Health Monitoring in Rotating Components at Elevated Temperature

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A Bayesian-based Graphical Modeling Tool for Probabilistic Structural Reliability Analysis

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Data Integration to Enable Health Management

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Remaining Useful Life Estimation of Computer Server Power Supplies

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Prognostic Methodology and Health Gauge for Machinery and Power Electronics

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Adaptive Distributed Intelligent Control Architecture for Future Propulsion Systems

Al Behbahani PhD

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An Introduction to PHM Design

Mike Roemer, Impact Technologies LLC

Special Briefing on Electronic Prognostics

Jim Dill PhD, Foster-Miller, Inc

Electronic Prognostics

Justin Judkins, Ridgetop Group

Integrating Process Sensors into CBM Systems

Chris Nemarich, SAIC Inc; Hank Hegner, Consultant

The State of Wireless in Maintenance and Automation Systems

Jeff Rybak, Oceana Sensor

Use of MFPT Vibration-Based Technologies for Turbomachinery System Diagnostics

Bill Marscher, Mechanical Solutions, Inc.

Comprehensive Tutorial in Tribology

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Reliability Centered Maintenance (RCM) - Classical and Streamlined Approaches

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Continuous Blade Monitoring in Gas Turbine Engines & Turbomachinery

Eric Olson & Michael Platt, Mechanical Solutions, Inc

Transducer Response Equalization - Using Data to Extend the Frequency Range of Accelerometers

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The Use of Wireless Sensors for Low- and High-Speed Data Acquisition Applications

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Development of Diagnostics with DSI eXpress and TYX TestBase

John Moussiaux, TYX Corporation

Introduction to SAVIAC

Drew Perkins, SAVIAC

IOTech 600 Series Portable Dynamic Signal Analysis

Larry Pullen, IOTech

Effective Monitoring of Reciprocating Compressors using the IMI Reciprocating Machinery Protector

Dave Corelli, IMI Sensors

Residual Stress as a CBM Metric

James Pineault, Proto Manufacturing

Solving Resonance Problems with Modal and Finite Element Analysis

Mitchell Stansloski, Pioneer Engineering

Vibration Analysis - Thinking Outside the Big Box

Derek Norfield, Datastick Systems

Advantages of Ultrasonics for Sound Analysis

Howard Napier, UE Systems, Inc

Using Current Signature Analysis to Find Load and Bearing Problems in Motors

Scott Lebruska, Baker Instrument Co

MFPT 62 (2008) Virginia Beach, VA

Theme: Failure Prevention for System Availability

Keynotes

The Way We Think About the Risks We Take is the Cause of All Our Problems

Bob Nelms

Support of Increasingly Complex Medical & Information Technologies: An Unprecedented Challenge

Steven Grimes

Global Aircraft Health Monitoring & Management

Jörg Reitmann

Technical Committees Session

Failure Analysis Committee

Marc Pepi

Sensors Technology Committee

Chris Nemarich

System Engineering Committee

John Lucero

Session 1A - Data/Knowledge Management

Legacy Platform Data Validity

Mark Warren

The Use of Non-Parametric Statistical Tools to Assess Reliability and Availability Drivers

Richard C Millar

Condition Based Maintenance Optimized Scheduling Decision Support Tool

Simon Jessop, Phillip Gurbacki, and Johan Reimann

Evolving from Data Management to Knowledge Management

Matt Sedlak

Managing Army Aviation Condition Based Maintenance Data in Support of the Fight

Jim Carter

Operational and Data Challenges in Integrated Health Management of Complex Systems

Bob Lawton

Session 1B - PHM Techniques

Pattern Recognition of Health-Data Derived Prognostic Health Management

Nick Frankle and Ron Shroder

A Toolbox Approach for Prognostic Development and Deployment, Part 1: Watchdog Agent and Tool Selection

Jay Lee and Lei Yang

A Toolbox Approach for Prognostic Development and Deployment, Part 2: Case Studies

Jay Lee and Lei Yang

The Operating Regime Approach for Precision Health Prognosis

Tianyi Wang and Jay Lee

Automated Health Management for Gas Turbine Engine Accessory System Components

Sudarshan Bharadwaj, Carl Byington, and Matthew Watson

A Comparison of Three Data-Driven Techniques for Prognostics

Kai Goebel, Bhaskar Saha, and Abhinav Saxena

Session 1D - Signal Analysis, Sensors and Distributed Systems Architecture

Transient Speed Vibration Analysis - Insights into Machinery Behavior

Presented by Tim Irwin; Stanley Bognatz

Paper Machine Supercalender Vibration Analysis with a DSPcentric, Multichannel Dynamic Signal Analyzer

Arun Menon

Advanced Sensor Development for Propulsion Health Monitoring

Craig Neslen

An Information Entropy Approach to Self-Powered Sensor Node Operation

Fred Discenzo, Dukki Chung, Kenneth A Loparo, and Farhad Kaffashi

Distributed Monitoring Systems, Architectures, Technologies, and Use Cases

Preston Johnson

Intelligent Structural Health Monitoring with Guided Ultrasonic Wave Sensors

Mark Hinders

Session 2C - Failure Analysis 1: Engineering Solutions for Failure Prevention

Army Metallurgy – A Glimpse into the Past

Marc Pepi

A Method for Machine Failure Detection and Isolation Using Personalized Diagnostic Model

LiJie Yu, Mark Osborn, and Daniel J Cleary

Repair of Apache Mast Support on AH64 Helicopter Using Cold Spray

Presented by Michael Lister; Phillip Leyman and Victor Champagne

Causes and Prevention of Bolted Joint Failures, Part 1 - Mechanics of Bolted Joints

Pete Harrell

Causes and Prevention of Bolted Joint Failures, Part 2 - How Bolts Fail

Pete Harrell

Causes and Prevention of Bolted Joint Failures, Part 3 - Bolt Failure Case Histories

Pete Harrell

Session 3A - Electronics & Power Systems Health Management

Noninvasive Approach to Health Management of Aircraft Power Systems Using Torque Ripple

Tommy Baudendistel

Prognostics for Electronic Components

Herbert Hecht

Improving Power Plant Availability Through Equipment Health Monitoring

Aaron Hussey and Stephen Hesler

Prognostics of Electronics under Vibration Using Acceleration Sensors

Jie Gu, Donald Barker, and Michael Pecht

The Science and Technology Focus of the Electric Navy

Lynn Petersen

History, Present Applications and Future Needs of Power Electronic Building Blocks

Terry Ericson

Session 3C - Failure Analysis 2: Tribology

Sample Preservation – The Key to a Successful Failure Analysis

Marc Pepi

Feature Extraction for Bearing Prognostics and Health Management (PHM) – A Survey

Weizhong Yan, Hai Qiu, and Naresh Iyer

Fault Detection and Failure Prediction for Automated Flare Tooling

Cannon Neslen

Investigation of Chemical Vapor Deposited (CVD) Aluminum as a Replacement for Cadmium on High Strength Steel

Jack Kelley

Integrative Materials-Process-Component Design: Present Achievements and Future Opportunities

Diana Lados

Session 4A - Health Management Strategies

Cost and Time Model of a Simulated Painting Facility for Tactical Vehicles

James A Kidd Jr and Sandra Young

State-Of-The-Art in Integrated Vehicle Health Management

Richard Greenough, T.S. Baines, O. Benedettini, R.M. Greenough, and H.W. Lightfoot

Economic Modeling for Prognostic Health Management

Ron Shroder and Nick Frankle

Shipboard Mission Readiness Assessment

Thomas Cook and Scott G. Valentine

Towards True Dynamic Decision Making in Maintenance

Presented by David Baglee; Adam Adgar, Erkki Jantunen, and Aitor Arnaiz

Controlled Condition Monitoring

Wolfgang Ziemer and Sandra Müller

Session 4B - PHM Applications

Introduction to Session: Lessons Learned from 15 Years of PHM Pursuits

JB Schroeder

Selected Artificial Intelligence Methods Applied within an Integrated Vehicle Health Management System

Michael J Roemer, Carl S. Byington, and Michael S. Schoeller

Prognostics of Automotive Sensors: Tools and Case Study

Hassan Al Atat, Shijin Wang, Masoud Ghaffari, Jay Lee, and Li-feng Xi

Failure Prediction of Critical Components in Military Vehicles

David Siegel, Jay Lee, and Masoud Ghaffari

Preventing Machinery Failures with Online Surveillance

Presented by Mickey Harp; Dennis H Shreve

PHM Applications: Past, Present, and Future

Andrew Hess

Session 5A - Health Management Tools and Capabilities

The Neglected Role of Information Measurement in Failure Prevention and System Availability

Martin Karchnak

Smart Machine Supervisory System: Concept, Definition and Application

Amit Deshpande, Sri Atluru, Sam Huang, and John P. Snyder

Wire We Measuring Wirelessly?

Derek Norfield

Component Remaining Life Estimate via Dynamic Reliability

Rena Fish Durham, John Pooley, Nat Albritton, and R. Giuntini

Autonomous Prognostic Monitoring Device

Shunfeng Cheng, Myra Torres, Larry Thomas and Michael Pecht

A Modeling and Analysis Environment for Solid Propellant Life Prediction

Tim Marvin, Jeff Steele, and Carl Byington

Session 5B - Gear and Bearing PHM

A Simplified Metrics Based Approach to Bearing Life Extension, Fault Analysis and Failure Prediction (An Update on the BearingLifeGuard Project)

John Judd

Increasing Machine Reliability through Precision Alignment - The Benefits of Optical Alignment Techniques

Presented by Tim Irwin; Stanley Bognatz

A Reconfigurable Embedded Prognostics Platform for Machinery Performance Management

Linxia Liao and Jay Lee

Damage Mechanics Based Bearing Prognosis Using HUMS Condition Indicators

Yi Liu and David He

Hilbert-Huang Transform Based Gearbox Fault Diagnosis

Ruoyu Li and David He

Session 5C - Failure Prevention for Materials and Structures

Evaluation of Chemical Agent Resistant Coatings that are Exposed to Ultraviolet Radiation

James A Kidd Jr and William S Lum

Health Monitoring of Military Composite Helicopter Structures Using Minimal Dynamic Sensing

Brandon Zwink, Douglas Adams, Ronald Evans and Dave Koester

The Development and Use of Probabilistic Mechanics Models in Condition Based Maintenance

Robert Kurth

Probabilistic Mechanics Analysis of the Impact of Stress Corrosion Cracking on Pipeline Leak Before Break

Robert Kurth

F-15 Structural Failure: Report on Accident Investigation and Remedial Actions

Jeff Calcaterra

Tutorials and Workshops

Session 1C - Health Monitoring of Structural Components

Douglas Adams, Purdue University

Session 2A - Commissioning and Maintenance Turnover

Laurie Gilmer and Steve Hesler, Facility Engineering Associates

Session 2B - Rapid Development and Deployment of Advanced Prognostics: Methodology, Tools, and Applications

Jay Lee, University of Cincinnati, Intelligent Maintenance Systems U/ICRC

Session 2B (Cont) - Deployment of IMS Watchdog Agent

Preston Johnson, National Instruments

Session 3B - An Introduction to PHM Design

Mike Roemer, Impact Technologies

Session 3D - Using Operating Deflection Shapes and Experimental Mode Shapes for Machinery Troubleshooting

Bill Marscher, Mechanical Solutions

Session 4C - Failure Analysis for Reliability of Machinery Components (Parts 1, 2 and 3)

Debbie Aliya, Aliya Analytical

Session 4D - The Use of Accelerometers in Machinery Vibration and Condition Assessment

John Judd, Dynamic Measurement Consultants

Session 5D - Mechanical Shock Analysis with the Pseudo Velocity Shock Spectrum - A Tutorial with an Editing and Calculation Workshop: Parts 1, 2 and 3

Howard Gaberson, Consultant

Session 2D - New Products & Services Session

New Range of Accelerometers with DC Response - Superior Temperature Stability

Bill Wright, Brüel & Kjær

About SAVIAC

Henry Pusey, SAVIAC

Integrated Rotor Dynamics and Modal Analysis for Turbomachinery

Arun Menon, Data Physics Corporation

Sound and Vibration Assistant and USB Connectivity Enhance Health Management Capabilities

Preston Johnson, National Instruments

Commtest The Revolution

Jim Seifer, Commtest

Radar-based Sensing of Blade Vibration and Damage

Bill Marscher, Mechanical Solutions, Inc

Vibration Analyzers Are Not What They Used to Be

Derek Norfield, Datastick Systems, Inc

Smart Sensors for Monitoring and Protection

Dave Corelli, IMI Sensors

Vibration Monitoring Products

Tom Smith, Wilcoxon Research

CoCo-80 The 2008 HAPPENING in Data Recorder and Dynamic Signal Analyzer Instrumentation

Joe Deery, Crystal Instruments

MFPT 2009 (2009) Dayton, OH

Theme: Failure Prevention: Implementation, Success Stories and Lessons Learned

Keynotes

Disruptive Technologies and Resistance to Change

Professor David Herrelko

The P&G Story - Success in Prognostics

Mr Art Koehler

Advances in Health Management Technology - A Solution Provider's Perspective

Dr. Richard Greaves - Meggitt

Session 1B - Health Management for Turbomachinery

Use of Operating Deflection Shapes for Turbomachinery Diagnostics

Eric Olson and William D Marscher

Advanced Signal Processing Algorithms and Architectures for Sound, Vibration, and Machine Condition Monitoring

Presented by Mike Denton; Preston Johnson

Scaled Turbine Engine Testing for Cost-effective Health Prognosis

Richard Holmes, Thomas Brooks, and Robert Tryon

Turbomachinery Prognosis Based on Finite Element, Tribological, and Fatigue Analysis Calibrated by Test

Bill Marscher and William J Kelly

Session 1C - Health Management Tools and Capabilities 1

Hot Spot Monitoring of a Metallic Lug Component

Matt Leonard, Steven E Olson, and Jeong-Beom Ihn

Applying Computational Fluid Dynamics to Predict Turbomachinery Erosion Rates

Bill Marscher, Edward M Bennett, and Artem Ivashchenko

A Systems Engineering Approach to Electro-Mechanical Actuator Diagnostic and Prognostic Development

Genna Swerdon, Matthew J Watson, Sudarshan Bharadwaj, Carl S Byington, Matthew Smith, Kai Goebel, and Edward Balaban

A Comprehensive Machinery Condition Analysis of Integrally-Geared Centrifugal Air Compressors

Tim Irwin and Stanley R Bognatz

Some Thoughts on Micro-Abrasion Mapping of Steels in Corrosive Environments

Hosen Jawan, M M Stack, and M T Mathew

Federated SOA: A Solution to Support CBM+ Weapon System Health Management

Matt Sedlak

Session 1D - Sensors

Wireless Power for Wireless Sensors

Bill Nickerson

Measuring Displacement Using Accelerometers

Renard Klubnik

Lubricating Fluid Wear Metal Detection for Machinery Failure Prevention

Ben Ward, Fred Discenzo, and Kenneth A Loparo

Non-contacting Measurement of Turbomachinery Blade Vibration

Mike Platt and John J Jagodnik

New Continuous Sensors for Condition Monitoring of Machines and Structures

Surya Narayanan Sundaramurthy, Sai Lalitya Mullapudi, Vignesh Ravindran, Kranti Bharath Tadipatri, Karthik Subramanian, Vesselin N Shanov, Chaminda Jayasinghe, Jandro Abot, and Mark J Schulz

Session 2A - Health Management Tools and Capabilities 2

Forward Looking Diagnostics

Zbig Karaszewski, C Kello, Saunora Prom, Daragh Sibley, and Michael Wade

Development of a Prognostics Toolbox with an Application to GPS Degradation Data

Jamie Coble and J Wesley Hines

F108 Transient Performance Data Analysis

Matthew Ballew

Pattern Recognition Based Fault Detection of Advanced Directional Drilling Tools

Dustin Garvey, Jörg Baumann, Jörg Lehr, and J Wesley Hines

Reliability Centered Maintenance Support Tools

Dennis Moore

On Performance Evaluation of Prognostics Algorithms

Tianyi Wang and Jay Lee

Session 2C - Electronics and Power Systems Health Management

How Ultrasound Can Prevent Electrical Failures by Non Invasive Inspection

Presented by Bob Snyder; Mark Goodman

Initial Operational Evaluation of a Novel Corona Monitoring System

Joe Sheeley, R Xu, Z Ren, B Ayhan, W Lee, M S Sahni, Hu Qiaohui, and T McClerran

A Fusion Prognostics Method for Remaining Useful Life Prediction of Electronic Products

Shunfeng Cheng and Michael Pecht

Implementing Industry Accepted Standards to Prevent the Restoring, Repairing and Replacement of Electrical Equipment (PRRR)

George Zeigler and Levi Zeigler

A Comprehensive Fault Dictionary Solution for Power Systems Health Management

Sonia Vohnout, Neil Kunst, Justin Judkins, and Doug Goodman

Failure Prevention in Aircraft Electric Power Supplies

Herb Hecht and Steven Burnett

Session 2Da - Signal Analysis

Diagnostic Aid Provided by Autocorrelation

James Robinson and Alan Collette

Factors Influencing Paper Machine Roll Related Vibration and Techniques for their Identification and Analysis

Arun Menon

Fault Detection and Diagnosis of Vehicle Gearboxes Using Vibration Analysis and Neural Networks

Hossein Davari-Ardakani, Morteza H Sadeghi, and Mohammad-Taghi Vakil-Baghmisheh

Session 2Db - Data/Knowledge Management

The Open Source Manufacturing Stack

Amit Deshpande and Pierce Kuhnell

Aircraft Operational Improvements Gained Through Knowledge Discovery

Assaad Krichene, Irtaza Barlas, and Scott Valentine

Ontology of Mobile Maintenance Processes

Erkki Jantunen, Luca Fumagalli, and Marco Macchi

Session 2E - Special Presentations Session

New Signal Processing Techniques for Advanced Machine Diagnostics and Prognostics

Bob Randall

Manufacturing Variability as a Key Contributor to Unexpected Equipment Failures

Presented by Larry Perkins; Jeff Calcaterra

Failure Prevention for Nuclear Power Plants through Proactive Management of Materials Degradation (PMMD)

Leonard Bond, S R Doctor, S Bruemmer, S E Cumblidge, A B Hull, and S N Malik

Cranfield IVHM Centre - The Story So Far

Kirby Keller

Session 3A - Health Management Systems and Architectures

A Distributed Prognostic Health Management Architecture

Sankalita Saha, Bhaskar Saha, and Kai Goebel

A Model-Based Mission Planning and Decision Support Tool

Simon Jessop and Thomas C Cook

A Diagnostic Demonstrator: A Platform for the Evaluation of Real Time Diagnostic Data Dedicated to Space Engines

Stéphane Benoit, Pierre Bornert, Serge Le Gonidec, and Philippe Supié

Prioritizing Prognostic and Reliability Growth Investments

Philip Bedard, Thaddeus Mateja, and Brenda Doyle

An Adaptive Prognostic Methodology for Sensor-Driven Component Replacement and Spare Parts Ordering Policies

Nagi Gebraeel and Alaa Elwany

A Systematic Health Monitoring Methodology for Sparsely Sampled Machine Data

David Siegel, Edzel Lapira, Mohamed AbuAli, and Jay Lee

Session 3C - PHM for Gears, Bearings and Lubrication

Signal Processing For Detection of Ball Bearing Defects From Noisy Data

Oleg Shiryayev

Physics-Based Gear Health Prognosis via Modeling

Richard Holmes, Robert G Tryon, Raja V Pulikollu, and Kevin Line

Current In-house R&D on Bearings

Vaughn Svendsen

Remaining Useful Life Prediction of Helicopter Gearbox Bearings via Vibration Diagnostics and Physics-Based Prognostic Modeling

Clint Baker and Nathan W Bolander

Intelligent Health Monitoring of Power Transmission Systems; an Experimental Validation

Ahmed Onsy, Robert Bicker, Brian Shaw, Chris Rowland, and Tom Kent

Using Hilbert-Huang Transform for Gearbox Fault Diagnosis Under Light Loading Conditions

David He and Ruoyu Li

Session 3Da - Condition Based Maintenance

Upgrade Fluid System Filter Element Monitoring to Increase Operational Reliability and Support Condition Based Maintenance Capability

Gary Rosenberg

US Army CBM Initiative followed by discussion with presenters and attendees

Jeff Bagwell

US Army CBM Initiative followed by discussion with presenters and attendees

Michelle Liddon

US Army CBM Initiative followed by discussion with presenters and attendees

Chris Sautter

Session 3Db - Advanced Material Inspection Technologies

Magnetostrictive Sensor (MsS) Technology for Inspection and Health Monitoring of Structures

Glenn Light, Hegeon Kwun, and C J Thwing

Structural Health Monitoring of Large Scale Composite Structures using the Structural Irregularity and Damage Evaluation Routine

Roger Crane and Colin P Ratcliffe

Shipboard Remote Inspection and Maintenance Using Minimally Invasive Technology

Ken Heller

Session 4A - Health Management for Maintenance and Decision Support

Common S2ENCE Maintenance

Simon Jessop, Johan Reimann, and Patrick W Kalgren

World Class Maintenance Benchmarks - Revisited

Klaus Blache

Emerging CBM Capabilities on the UH-60 Blackhawk Utilizing IVHMS Data Correlation and Analysis

Sam Kunselman, Rena Durham, and Don Estes

Prognostic Models for Computing and Updating Remaining Useful Life Distributions under Time-Varying Environmental Conditions

Nagi Gebraeel

An Integrated Approach to Maintenance Strategy Development within SMEs

David Baglee, Robert Trimble, and John MacIntyre

Strategies for Optimizing the Application of Prognostic Health Management to Complex Systems

Presented by Joel Luna; Ron Shroder, Nick Frankle, D.C. Conroy

Session 4C - Failure Analysis: Engineering Solutions for Failure Prevention

Analysis of a Failed Tail Rotor from an Army Attack Helicopter and Related Materials

Marc Pepi and Michael Lister

Diagnosing the Root Cause of Turbo-machinery Blade Failures, Part 1: Experimental and Analysis Methodology

Harold Simmons, Timothy Allison, David Ransom, and Vishwas Iyengar

Diagnosing the Root Cause of Turbo-machinery Blade Failures, Part 2: Case Study of an Axial Flow Compressor Failure

Tim Allison, Harold Simmons, David Ransom, and Vishwas Iyengar

Using Electron Backscatter Diffraction to Evaluate the Failure of Rocket Components

Presented by Tim Swigart; Jeff Calcaterra

Gas Turbine Casing Vibrations under Blade Pressure Excitation

Gareth Forbes and Robert Randall

Fracture Analysis of Manual Hoist: A Case Study

Ying Tan, Biao Cao, Ming Chen, Ming-zhen Mo, and Xiao-gang Peng

Tutorials

Signal Processing for Bearing Diagnostics and Prognostics

Bob Randall

Empirical Methods for Process and Equipment Condition Monitoring and Prognostics

Wes Hines

Introduction to Systems Engineering Principles

John Lucero, Sonia Vohnout, Allen Revels

IC Prognostic Methodologies: Increasing Useful Lifetime, Yield Improvements, and Intermittency Detection

James Hofmeister

Early Detection of Faults in Power Supplies and Actuators Systems

James Hofmeister

Application of Fluid Measurements and Analysis Technologies to Machinery Condition Assessment

Allison Toms

MFPT 2010 (2010) Huntsville, AL

Theme: Transition: From R&D to Product

Keynotes

Implementation and Cost Benefits of CBM+ in Army Aviation"

Mr Chris Smith

Is Structural Health Monitoring All that it is Cracked Up to Be?"

Brett Commander PE

Signal Processing for Condition Monitoring—Present and Future"

Prof Len Gelman

Session 1A - Electronics and Power Systems Health Management

Power Systems Health Management for Unmanned Aircraft

Mark Walker and Kim Wilkins

Fault Tolerance for Actuators with Extended Operation under Transistor Trigger Suppression and Winding Fault Isolation

Antonio Ginart, Irfan Ali, Patrick Kalgren and Michael Roemer

Model-Based Avionics Systems Fault Simulation and Detection

Chetan Kulkarni, Gautam Biswas, Kyusung Kim, and Raj Bharadwaj

A Prognostics Approach for Electronic Damage Propagation and Analysis in Electromechanical Actuator Systems

Sonia Vohnout, Neil Kunst, Chris Lynn, and Byoung Uk Kim

Innovative IEEE 1451 Power System Prognostic Sensor

Sonia Vohnout, Neil Kunst, Chris Lynn, Byoung Uk Kim, and Fernando Figueroa

Session 1B - Signal Analysis

Application of Statistical Based Data Mining Techniques to Operational Data for Ground Vehicle Diagnostics

Matt Rigdon, Jeffrey Banks, Karl Reichard, Bryon Rattman, and Ling Rothrock

On the Use of the Hilbert Transform for Amplitude and Phase Demodulation Applications

Arun Menon

So You Think You are Making Accurate Measurements?

David Corelli

New Time-frequency Adaptive Techniques for Damage Diagnosis in Non-stationary Conditions

Len Gelman

Hybrid Ceramic Bearing Prognostics using Particle Filtering

David He, Ruoyu Li, Jinghua Ma, and Arvind Panyala

Session 1D - CBM

Reliability Centered Maintenance: Determining Metrics That Drive the Bottom Line

Dennis Moore and Juan Gonzalez

Streamlined Grease Analysis to Complement Vibration and Other Diagnostic Technologies

Rich Wurzbach

Development of a Fuel System Advanced Diagnostic and Predictive Capability for the M2/M3 Bradley Fighting Vehicle

Presented by Jason Hines; Scott Pflumm and Jeffrey Banks

Mashups to Support CBM+ Software Application Transition from R&D to Product

Matt Sedlak

The P-F Interval: The Cornerstone of Condition Based Maintenance

Chris Sautter

Transitional Failure Testing and Prognostics Software Development Applied to Helicopter Critical Component

Romano Patrick, Matthew Smith, Carl Byington, George Vachtsevanos, Daniel Wade, and Daniel Suggs

Session 2A - Health Management Tools and Capabilities

Detecting Bearing and Gear Failures through At-Line Wear Debris Analysis

Allison Toms

Real-time Oil Quality and Metallic Debris Monitor for Gearbox Applications

Carl Byington, Nicholas Mackos, Carl Palmer, Cody Ture, Garrett Argenna, Rachel Moss, Allison Toms, Kevin Goddard, and John Moffatt

“Site-Direct” Oil Analysis completes the Condition Monitoring goal of Continuous Machine Monitoring

Jack Poley

A Model-based Reasoning Framework for Prognostics and Health Management

Mark Walker and Ravi Kapadia

Bringing the Benefits of Integrated Vehicle Health Management to Unmanned Systems

Mike Schoeller, Theodore Meyer, Jason Fetty and Treven Baker

Active Electrical and Mechanical Techniques for Modal Analysis of Operating Equipment

Bill Marscher, William Kelly, and Jeremy Weiss

Session 2B - Diagnostics

Case Study: New Pump Installation Analysis of Excessive Vibration

Ken Singleton and Bob McGinnis

Induction Motor Power Quality in Rotating Machines under Faults

Suri Ganeriwala, Mohsen Nakhaeinejad, and Sankar Rengarajan

Crack Fault Diagnosis in Drive Shafts Using Inverse Method

David He and Venugopal Jayaraman

Extended Range RF Technology for Wireless Industrial Vibration Sensors

David Corelli

Adapting Advanced Pattern Recognition Software to Predict and Optimize Pulverizer Performance

Nilimb Misal, Michael Santucci, and Chance Kleineke

Session 2C - Failure Analysis

Improving the Reliability of Large Diesel Engine Turbochargers

Edgar Gunter and Wen Jeng Chen

Materials Testing and Specimen Selection for Failure Analysis Support

Debbie Aliya

Predicting Fatigue Failure Using Intrinsic Material Properties

Richard Holmes and Raja Pulikollu

Root Cause Analysis of Turbine Generator Vibration from Mechanical, Thermal, and Electrical Faults

Presented by Marco Caflisch; Alexi Rakow and Joseph Rakow

Assessment of Aircraft Stairway Welds

Marc Pepiand James Catalano

Design for Testability: Anticipating Sensor Requirements through Advanced Failure Analysis

Chris Stecki, Shoshanna Rudov-Clark, Jacek Stecki, and Adrian Ryan

Session 3B - Material Health Management

Advances in Non-Contacting Stress Measurement for Turbomachinery Blades

Mike Plattand John Jagodnik

Characterization of Fatigue Damage and Residual Life Time Assessment by Fractal Analysis of the Deformation Structure

Jürgen Schreiber, Ulana Cikalova and Norbert Meyendorf

Session 3D - Business Cases/Economic Benefits/ Performance Based Logistics

Estimating Prognostic Benefit for High Valued Components in Repairable Systems

Gregory Kott

Consideration of Tangibles and Intangibles to Show Economic Benefit of Prognostics and Health Management

Joel Luna

NDIA EHM Study Report

Paul Howard

Session - Special Presentations

Intermittent Fault Detection and Isolation System Expanding Role

Ken Anderson

Innovations from CBM Research including the Business Case Analysis

Presented by Nicholas Goodman; Abdel Bayoumi

How Opportunistic is it for Prognostics Products to Transition?

Phil Dussault

Session 4A - Health Management Strategies

Small Turbine Engine Testing for Cost-Effective Health Prognosis

Richard Holmes and Thomas Brooks

Autonomic Integrated Prognostics Health Management Systems: Concepts and Designs

Sonia Vohnout, Byoung Uk Kim, Chris Lynn, and Neil Kunst

Automated Contingency Management (ACM) for Overactuated Systems

Brian Bole, Douglas Brown, and George Vachtsevanos

Agent-based Automated Algorithm Generator

Geoffery Zhang, Roger Xu, Xiong Liu, Margaret Lyell, Xiaodong Zhang and James Bechtel

Realizing The Value: Transitioning a Proof of Concept Prototype into a Fully Functional Product

Dennis Moore

A Survey on Prognostic Metrics

Leandro Barajas, Tsai-Ching Lu, and Narayan Srinivasa

Session 4C - Systems Engineering and Health Management Applications

The Decision Analysis Process

John Lucero

Heavy Lift Launch Vehicle Payload Fairing Structural Concept Down Select Process

John Lucero

Machine Tool Health Monitoring Using Prognostic Health Monitoring Software

Radu Pavel, Loran Miller, John Snyder, Nick Frankle, and Gary Key

Shape Classification Particle Counting and Emission Spectroscopy for Wear Debris Analysis –
Current and Future Trends

Daniel Walshand Suneet Chadha

Session 4D - Data/Knowledge Management

Cloud Computing Architecture for Manufacturing Data Management

Amit Deshpande, Kevin Bevan, and Mark Doyle

A Survey of Rotating Machinery Condition Indicators

Joe Sheeley and Cory Duggin

Moving Beyond Advanced Analysis to Data Management and Decision Making

Mike Denton, Preston Johnson, and Kurt Veggeburg

Web 2.0: Forming a Collaborative Information Enterprise

Matt Sedlak

US Navy Military Sealift Command's Maintenance Management Program

Randy Torfin

Environment for Processing of Wideband Signals

Renata Klein and Eduard Rudyk

Tutorials

Cepstrum Analysis for Machine Diagnostics and Operational Modal Analysis

Bob Randall

Fracture Analysis for Maintenance Engineers

Debbie Aliya

Federated Architecture - "Moving Beyond the Silos"

Harlan Shober

Diagnostic Sensors

Chris Nemarich

Interactive Session: Data Management Issues

Chris Sautter

Durability and Life Prediction

Animesh Dey and Frank Priscaro

MFPT 2011 (2011) Virginia Beach, VA

Theme: Enabling Sustainable Systems

Keynotes

Corrosion Based Maintenance - Using CBM to Reduce the Cost of Corrosion

Bill Needham

The Origins of Structural Failure by Fatigue

Dr Neville Rieger

Opportunities for Monitoring and Prognostics in Nuclear Power Plants

Dr Leonard Bond

Session A1 - Signal Analysis 1

Influence-graph Based Techniques for System-level Diagnostics

Branden Archer, Kranthi Mamidisetty, Shivakumar Sastry, Kenneth Loparo, and Fred Discenzo

An Integrated Approach for Hybrid Ceramic Bearing Life Prognostics

Jinghua Ma and David He

Applying Modal Analysis to Improve Machinery Reliability

Stanley Bognatz

Hilbert-Huang Transform based Acoustic Emission Signal Quantification for Rotational Machine Health Monitoring and Diagnostics

Ruoyu Li and David He

Using Modal Analysis for Detection of Cracks in Wind Turbine Blades

Suri Ganeriwala and Mark Richardson

Editing Time Signals using the Real Cepstrum

Robert Randall and Nader Sawalhi

Session B1a - Failure Analysis - Corrosion Prevention

Accelerated Corrosion and Immersion Testing of 13mm Diameter Grade 10.9 Bolts for Use with Bolt-on Armors

Tom Considine, Tom Braswell and Jack Kelley

Corrosion Performance and Coating Characterization of Two Novel Anodic Coatings on Aluminum Armor Alloys

Elizabeth Charleton, Steven Kilczewski, John Kelley and Paul Huang

Software Design Tool Predicts Galvanic Corrosion Rates on Complex Assemblies

Leslie Bortels and Alan Rose

Session B1b - Data Analysis and Decision Support

Data Discovery and Mashup

Harlan Shober

RCM and eShop

Dennis Moore

Dimensionality Reduction Analysis in Condition Classification of Prognostics

Chao Liu and Dongxiang Jiang

DoD Acquisition Process

Dennis Moore

Session C1 - Electronic and Power Systems Health Management 1

Early Detection of Avalanche Breakdown in Embedded Capacitors using SPRT

Mohammed Alam, Michael Azarian, Michael Osterman and Michael Pecht

Towards an Online Early Diagnostic for Capacitors

Antonio Ginart, Irfan Ali, Irtaza Barlas, Patrick Kalgren, Scott Poll, and Jose Celaya

The Right Stuff for Aging Electronics, Intermittence, No Fault Found

Brent Sorensen, Cheryl Chambers and Ken Anderson

RUL Evaluation Based On Thermal Estimation of Fault-Tolerant Drive Systems

Irfan Ali, Antonio Ginart, Patrick Kalgren and Michael Roemer

Risks to Telecommunication Equipment under Free Air Cooling Conditions and Their Mitigation

Jun Dai, Diganta Das and Michael Pecht

Session D1 - Health Management Tools and Capabilities

An Innovative Cable Failure Detection and PHM Toolset

James Hofmeister and Sonia Vohnout

HAPTICS as a Platform for CM Technology Deployment and Training

Thomas Lagö

Readiness Approach for Propulsion Engine LRUs

Girija Parthasarathy, Dinkar Mylaraswamy, Onder Uluyol, Kyusung Kim, Sonia Vohnout and Bruce Thompson

Diagnostics and Prognostics Tools for Assessing Remaining Useful Life of Nuclear Power Plant Materials

Pradeep Ramuhalli, Jeffrey Griffin, Jacob Fricke, Charles Henager Jr, Mukul Dixit and Leonard Bond

Estimation of Fan Bearing Degradation Using Acoustic Emission Analysis and Mahalanobis Distance

Hyunseok Oh, Michael Azarian and Michael Pecht

Session A2 - Signal Analysis 2

Classification Prognostics and Condition Based Maintenance (CBM) of Rolling Element Bearings based on Evolutionary Algorithm Optimisations of Kohonen's Self-Organising Maps

Thomas Lagö and Jay Nkuna

The Use of the Multiple Discriminant Predictive Analysis™ Approach to Automate Conformance to ISO 10816-2

John Judd

The Effect of Speed Variations on Machinery Vibrational Analysis

Joseph Sheeley and Frank Steinle

Wavelet and Fast Fourier Transforms as Hierarchical Processing Tools to Monitor an RC bridge at Interstate 40

Mohammad Azarbajani and Mahmoud Reda Taha

Understanding High Frequency Measurement and Demodulation

David Corelli

Session B2 - Data/Knowledge Management

Test Stand Links Manufacturing with In-field Failure Prevention

Fred Discenzo, Dukki Chung, Matthew Kirsch and Kenneth Loparo

LabSpaces and Tri-store, Swift and Federated Security: An Architecture for Scientific Data Management

Harlan Shober

Methods for Analyzing Vehicular Data to Implement Condition Based Maintenance

Christopher Davies, Daniel Jones and Thomas Kilby

How Does My Choice of ADC Effect My Vibration Measurement?

Douglas Farrell

Manage Assets Without Suffering a Data Explosion

Douglas Farrell

CNC Integrated Manufacturing Data Management

Amit Deshpande and James Neidhart

Session D2 - Health Management Strategies

Decomposition of Structural Vibration for Wind Turbine Diagnosis

Robert Randall, Nader Sawalhi, William Marscher, Thomas Walter and Jeremy Weiss

Wind Turbine Instrumented Surveys Help Identify Service Needs

Preston Johnson and Michael Lenz

Monitoring System for Storm Readiness and Recovery of Test Facilities: Integrated System Health Management (ISHM) Approach

Fernando Figueroa, Jon Morris, Mark Turowski, Richard Franzl, Mark Walker, Ravi Kapadia, Meera Venkatesh and John Schmalzel

CECOM LCMC CBM+ Strategy

David Pack

Towards a Safe & Reliable Operation of Cyber Physical Systems

Kenneth Eizenga

Wind Turbine Drivetrain Condition Monitoring - an Overview

Shuangwen Sheng and Paul Veers

Session A3 - Sensors

Metallic Wear Debris Sensors: Promising Developments in Failure Prevention for Wind Turbine Gearsets and Similar Remotely Situated Components

Jack Poley

Dynamic Strain Sensor Calibration for Sustainable Life and Usage Monitoring

Hyungdae Lee, Jeremy Sheldon, Matt Watson, Carl Palmer and Timothy Fallon

Trustworthy Wireless Sensors

William Nickerson, Wayne Manges and John Munro, Jr

Changing the Way You Look at Oil: Real-Time Diagnostics for the Military Sealift Command

Edgardo Guevara and Patrick Henning

Corrosion Sensors and ISIS; a Sensor Based Approach to Condition Based Maintenance of Tanks and Voids on US Navy Ships

Bruce Nelson

Session B3 - Economic/Business Case Studies and Analysis

Integrated Methodology and Tools for Health Management (HM) Business Case Analysis (BCA)

Joel Luna

A Real Options Optimization Model to Meet Availability Requirements for Offshore Wind Turbines

Gilbert Haddad, Peter Sandborn and Michael Pecht

Maximize Return on Assets through Integrated Condition Monitoring

Greg Hood

Implementation of Condition Based Maintenance (CBM) and Health & Usage Monitoring Systems (HUMS) in the UK Defence Land Environment

Christopher Hockley and Laura Lacey

Achieving Exceptional Benefits to Costs through Condition Based Maintenance: How Two of the Largest CBM Programs Learned to Predict Machinery Failures and Save Millions

Loren Cleven and Tim Kelley

Simulator Solutions for "Self Correcting" Maintenance Systems

Dennis Moore

Session C3 - Systems Engineering

Systems Engineering: A Fundamental Discipline Full of Controversial Opinions

John Lucero

Aircraft Mishap Prevention using the USAF MECSIP process

Bob Ware

Systems Integration and Planning for Disparate Technologies

Allen Revels

Session D3 - Prognostics and Health Management 1

Identification of Failure Mechanisms to Enhance Prognostic Outcomes

Sony Mathew, Mohammed Alam and Michael Pecht

Prognostics for Polymer Positive Temperature Coefficient Resettable Fuses

Shunfeng Cheng, Kwok Tom and Michael Pecht

Feasibility of Prognostics for Transformer Remaining Useful Life Predictions

Eric Strong, Jamie Coble, Siobhan O'Reilly and Wesley Hines

Session A4a - Electronic and Power Systems Health Management 2

Travel Waves Based Intermittent Disconnection Detection

Antonio Ginart, Irfan Ali, Irtaza Barlas, Jonathan W. Goldin, Patrick Kalgren and Michael Roemer

Diagnosis and Prognosis Health Management for Aircraft Electrical Power System

Tianxiang Xiong and A Savvaris

Session A4b - Prognostics and Health Management 2

Model-Based Diagnostics and Prognostics of Machinery

Mohsen Nakhaeinejad, Jaewon Choi, Sankar Rengarajan, Ted Costuros and Michael Bryant

A Particle Filtering Approach to Remaining Useful Life Prediction of Aircraft Engines

David Siegel, Wenyu Zhao, Hassan Al-Atat, Jay Lee and Manish Kumar

A Systematic Health Monitoring and Fault Identification Methodology for Machine Tool Feed Axis

Tyler Skirtich, David Siegel, Jay Lee and Radu Pavel

Session B4 - Failure Analysis - Engineering Solutions for Failure Prevention/Case Histories

Improving the Reliability in the Next Generation of US Army Platforms Through Physics of Failure Analysis

Geetha Chary, Ed Habtour and Gary Drake

Incorporation of a Probabilistic Monotonic Strain Energy Analysis to a Lifting Method

Onome Scott-Emuakpor, Tommy George, Charles Cross, Todd Letcher and M-H Herman Shen

Novel Approach to Improve Electronics Reliability in the Next Generation of US Army Small Unmanned Ground Vehicles Under Complex Vibration Conditions

Ed Habtour, Cholmin Choi, Michael Osterman and Abhijit Dasgupta

Solid Particle Erosion Testing of Helicopter Rotor Blade Materials

Marc Pepi, Richard Squillacioti, Lynne Pfladderer, Andrew Phelps

Modeling Erosion Wear Rates in Slurry Flotation Cells

V. Bhushan, Michael Lipsett

Characteristics of Impact Problems

Julian Raphael

Session D4 - Condition Based Maintenance

Use of Degradation Stages for Condition-Based Maintenance

Georg Wurzel, Andreas Doleschel and Michael Weigand

Prognostic Health Management (PHM) Solutions for Battery Packs Used in Critical Applications

John Bush, James Hofmeister and Sonia Vohnout

Influence of CBM+ Information to the Value Stream

David Pack

Army Implementation of CBM

Christopher Smith

Object-Based Simulation for Preventative Maintenance Planning

Abdel Bayoumi

Industrial Perspectives of CBM

Rachel Moss

Tutorials

Elements of an Effective Systems Thinking Methodology

Debbie Aliya

Grease Sampling and Analysis: Applying New Sampling and Analysis Technologies for Improved Reliability

Rich Wurzbach

Relating Vibration Measurements to Reliability

John Judd

MFPT 2012 (2012) Dayton, OH

Theme: PHM: Driving Efficient Operations and Maintenance

Keynotes

Ted Fecke

Health Management in the US Air Force, from the Past to the Future

Dr Fred Discenzo

Health Management - a Technologist's Perspective

Prof Michael Pecht

Battery Health and Safety Management

Session 1A - Prognostics

Fault Prognosis and Uncertainty Management with Particle Filter

Mike Roemer, Liang Tang, Gregory Kacprzyński, Kai Goebel, and George Vachtsevanos

Anomaly Detection for Insulated Gate Bipolar Transistor (IGBT) Under Power Cycling Using a K-Nearest Neighbor Technique

Edwin Sutrisno, Qingguo Fan, Diganta Das, and Michael Pecht

Low Computational Cost Prognostic Algorithm for Embeddable Applications

Antonio Ginart, Irtaza Barlas, Irfan Ali, Patrick Kalgren, and Mike Roemer

Sensor-based Realtime Numeric Simulation for a Condition-forecast-oriented Maintenance Strategy

Karl Nienhaus, Christian Bernet, Markus Schütz, Ralph Baltes, and Christian Fabry

A Study of Machining Process Power Monitoring and Product Quality Prediction

Wenyu Zhao, Jay Lee, and Amit Deshpande

Model Based Battery Management System for Condition Based Maintenance

Nick Williard, Wei He, and Michael Pecht

Session 1B - Failure Prevention for Materials and Structures

Computational Durability Simulation for Superalloy Turbine Disks

Robert Tryon

Accelerating Materials Insertion by Evolving the DoD Materials Qualification-Transition Paradigm

Greg Schoeppner

Damage Accumulation Rate Computation in the Frequency Domain Due to Random Loading Using FEM-RFC Model

Ed Habtour, Abhijit Dasgupta, and Mark Paulus

Ultrasonic Shot Peening as a Field Deployable Alternative to Conventional Shot Peening

Brian Gabriel, Marc Pepi, Douglas Wolfe, and Timothy Eden

Investigation of Failed Missile System Launcher Bolts

Scott Grendahl

Comparison of Fatigue Life Results between Load Controlled Coupon Specimens

Casey Holycross, Onome Scott-Emuakpor, and Tommy George

Session 1C - Data Mining and Management

Data Management Techniques for Predictive Monitoring and Prognostics

Doug Farrell and Preston Johnson

Saving Man Years, Big Data Techniques, and Your Data

Harlan Shober

Cloud Computing in the World of Machine Failure Prevention

Doug Farrell and Preston Johnson

An Information Management Implementation for RDT&E Centers using Big Data techniques

Matt Sedlak

Airframe Digital Twin: Creating Virtual Replicas of Every Aircraft in the Fleet

Richard Holzwarth, Eric Tuegel, and Pam Kobryn

Session 2A - Condition-Based Maintenance 1

The Metamorphosis of Oil Analysis

Jack Poley

Ultrasound Assisted Lubrication Best Practices

Adrian Messer

Survey of Lubrication Oil Condition Monitoring, Diagnostics, and Prognostics Techniques and Systems

Junda Zhu, David He, and Eric Bechhoefer

Reliability Centered Maintenance and the Application of Data Driven Automated Workflow into Engineering and Maintenance Disciplines

Dennis Moore, Matt Sedlak, and Harlan Shober

Current Research Activity on the Impact of No Fault Found (NFF) On Maintenance Effectiveness through Life

Chris Hockley and Paul Phillips

Session 2B - Failure Analysis

Case Studies Using an Epistemologically Derived Systems Thinking Approach in a Failure Prevention Consulting Practice

Debbie Aliya

Accelerated Corrosion Testing for Coated Turbine Compressor Blades Using Small Turbine Engine Capabilities

Robert Tryon

Air Force Analysis of Failures Induced by Manufacturing Variability

Bob Ware

Effect of Ground Surface Depth in Helical Compression Spring Stresses

Rudolph Scavuzzo, Chance Kleineke, and Joseph Hoffmann

Static and Dynamic Analysis of a Coal Bowl Mill

Chance Kleineke and Rudy Scavuzzo

Failure Mechanism and Fault Diagnosis of Power Equipment

Dongxiang Jiang and Chao Liu

Session 2C - Health Management Architectures

New Approaches for Ships Fleet-wide Management and Naval Mission Prognostics

Flavien Peysson, Claude Allemand, Mustapha Ouladsine, and Benoît lung

A Review of PHM System's Architectural Frameworks

Surya Kunche, Chaochao Chen, and Michael Pecht

Space Sortie Production; the Role of HM in Creating the Factory of the Future

J B Schroeder

In Pursuit of Flight - 1914 Style: Transatlantic Flying Boat by Curtiss

Jim Lally

Session 3A - Signal Analysis

Proper Amplitude Estimation Strategies for CBM Applications

Thomas Lagö

Time Synchronous Averaging of Non-integer Multiples

Preston Johnson

The Role of Hough Transform for Automatic Interpretation of Spectral Correlation Diagrams

Gianluca Nicchiotti and Gaëtan Giner

Features of a Useful Plant Machinery Online Monitoring System

Joseph Sheeley, Jeremy Weiss, and Bill Kelly

Enhancing Bearing Fault Diagnosis Using Cepstrum Pre-whitening Technique

Suri Ganeriwala, Jun Yang, and Ruoyu Li

From Signal Processing to Prognostics

Preston Johnson

Session 3B - Applications of Condition Monitoring/Health Management

Army Implementation of CBM: 2012 Update

Christopher Smith

Health Management and Condition Based Maintenance – An Industrial Perspective

Eric Olson

IMS Successes in Applications

Wenyu Zhao

PHM Applications within General Atomics - HOLDING TITLE

Mark Walker

A Case Study in Wireless Data Collection, Visual Analytics and Health Management

Wade Clark

PHM Technologies: Learning from Applications & Design

Subrat Nanda

Session 3D - Condition-Based Maintenance 2

Prognostics Using Existing Data

Erik Webster, Tom Cook, and Simon Jessop

Reliability Model Development and Sensor System Optimization of the Gearbox Reliability Collaborative's 750kW Test Gearbox

Brendan Geels, John Steele, and Shuangwen Sheng

Model-based Fault Diagnostics of Induction Motor and Centrifugal Pump

Michael Bryant and Ji-Hoon Choi

Powertrain Diagnostics - Part 1 - Detecting Injector Deactivation Failure Modes in Diesel Engines Using Simple Time Domain Approaches

Mitchell Lebold, Scott Pflumm, Jeffrey Banks, Jonathan Bednar, Kenneth Fischer, and Joseph Stempnik

Powertrain Diagnostics - Part 2 - Detecting Injector Deactivation Failure Modes in Diesel Engines Using a Crankshaft Speed Order Domain Approach

Jonathan Bednar, Mitchell Lebold, Karl Reichard, Scott Pflumm, Jeffrey Banks, Kenneth Fischer, and Joseph Stempnik

Effects of Cosmic Rays on SLA Wear Monitoring

Charles Blatchley

Session 4A - Electronic and Power Systems Health Management

Embeddable Parametric Health Characterization of Power Drive

Patrick Kalgren, Antonio Ginart, Irtaza Barlas, Irfan Ali, Patrick Kalgren, and Mike Roemer

Rapid Methods for Production Line Testing of Small Electrical Motors

Thomas Lagö

Arc-Fault Protection for 270-Vdc Power Equipment

Dennis Grosjean and Daniel Schweickart

Uptime Improvements for Photovoltaic Power Inverters

Sonia Vohnout, Patrick Edwards, and Neil Kunst

Embeddable Platform for Modern Power Quality Monitoring

Patrick Kalgren

Canary Approach for Monitoring BGA Interconnect Reliability under Temperature Cycling

Preeti Chauhan, Michael Osterman and Michael Pecht

Session 4B - Health Management Tools and Capabilities

Machine Tool Health Characterization Using Condition Monitoring and Prognostic Based Technologies

Radu Pavel and Jonathan Iverson

Machine Tool Feed Axis Health Monitoring Using Plug-and-Prognose Technology

Linxia Liao and Radu Pavel

Advanced Diesel Engine Health Monitoring Algorithms for Ground Vehicles

David Siegel, Jay Lee, Canh Ly, Andrew Bayba, and Kwok Tom

A Process for Data Driven Prognostics

Eric Bechhoefer and David He

PHM and Automation Convergence

Fred Discenzo, Dukki Chung, and Patrick Carle

A Prognostics and Health Management Solution for Information Technology (IT) Networks

Sonia Vohnout, Matthew Rounds, Robert Wagoner, and Neil Kunst

Session 4C - Sensors

Real-world Deployment of Wireless Accelerometers

Bill Nickerson

Extended Range RF Wireless Technology for Industrial Monitoring

David Corelli

Collaborative Wireless Sensor Networks for Facilities Management

Mert Bal

Broadband Waveguide Sensors for Use in High-Temperature, Corrosive, and Other Harsh or Difficult-to-Access Environments

Christopher Larsen and Stuart Shelley

An Introduction to the Need for Turbine Engine Test Cell Instrumentation Standards

Bill Stange

Advanced Noise Control Fan Test Rig Capabilities and Trade Studies for Aero Engines

John Lucero

Session 4D - Diagnostics

New Advances in Ultrasound Condition Monitoring

Adrian Messer

Diagnosis of Rolling Element Bearing Fault in Bearing-Gearbox Union System using Wavelet Packet Correlation Analysis

Jing Tian, Michael Pecht, and Changning Li

Multivariate SPRT for Improved Prognostics of Enterprise Computing Systems

Kenny Gross and Ram Dhanekula

Fault Classification Rules Extraction of Wind Turbine Based on C4.5 Algorithm

Jie Chen, Dongxiang Jiang, Wenguang Yang, Xiaowen Deng, and Yongxin Feng

Human Listening As a Classification Tool in Production Lines

Thomas Lagö

Advanced Automated Troubleshooting Technology

Simon Jessop

Tutorials

An Integrated System Health Management Methodology: Beyond Fault Diagnosis and Failure Prognosis

George Vachtsevanos

An Integrated Integrity Management Approach for Improved System Autonomy

George Vachtsevanos

An Intelligent Approach to Life Cycle and Risk Management of Critical Military and Industrial Systems

George Vachtsevanos

Foundations of Thinking Skill Optimization

Debbie Aliya

MFPT/ISA 2013 (2013) Cleveland, OH

Theme: Sensors and Systems for Reliability, Safety and Affordability

Keynotes

Health Management of Space Assets, Past Present and Future

Dr Robert J Shaw

Sent to the Salt Mines

Steve Mikolajcik

Lord Kelvin's Revenge: The Past, Present, and Future of Measurement

Prof John Henshaw

Session 1B - Health Management Tools and Capabilities

Nonintrusive Load Monitoring of Rotating Machinery

Jacob Siegel and Nathan Brown

Reconfigurable Informatics Platform for Rapid Prognostic Design and Implementation: Tools and Case Studies

David Siegel and Jay Lee

Health Management of Utility Coal Pulverizers

Chance Kleineke and Michael Santucci

Extending Rotorcraft Component Lives Using IMS Tools

John Lacontora

Evaluation of Data-Logging Transducer to Passively Collect Pressure Vessel P/T History

Stephen Wnuk, Son Le, and Raymond Loew

Software Tools to Support the Assessment of System Health

Kevin Melcher

Session 1C - Diagnostics

Gear Fault Detection Using Acoustic Emission Spectrum Kurtosis

Yongzhi Qu, Junda Zhu, David He, and Eric Bechhoefer

The Interference of Variable Frequency Drives (VFDs) on the Vibration Signature Analysis of Machine Defects

Kahlil Detrich, Suri Ganeriwala, and Nader Sawalhi

Optimized Diagnostic Model Combination for Improving Diagnostic Accuracy

Surya Kunche, Chaochao Chen and Michael Pecht

Automatic Construction of Diagnostic Bayesian Network Models from Airplane Maintenance Manuals

Haiqin Wang

Clustering Techniques for Machinery Fault Classification

Joseph Sheeley

Performance Evaluation of a Second-Order Indicator of Cyclostationarity for Gear Condition Monitoring

Joshua Isom, Yan Chen, Zaffir Chaudhry, and Paula Dempsey

Session 1D - Wind Turbines

Analog Signal Processing to Improve Acoustic Emissions Sensing

Eric Bechhoefer, Yongzhi Qu, Junda Zhu, and David He

Development and Validation of Lubrication Oil Particle Contamination Models

Junda Zhu, Bin Qiu, Eric Bechhoefer, and David He

Application of Adaptive Filtering in Bearing Fault Detection in Wind Turbine Gear Transmission System

Ruoyu Li, Mark Frogley, Michael Messerschmidt, and Johnny Simmons

An Enhanced Time Synchronous Averaging for Rotating Equipment Analysis

Eric Bechhoefer

Advanced Prognostic Health Management Technology for Wind Turbine and Rotorcraft Gearbox Systems

Raja Pulikollu

Online Wear Debris and Water Contamination Sensing for Wind Turbine Health Monitoring

Joe Murray and Ryan Brewer

Session 2B - Signal Analysis

Signature Analysis of Cavitation in Centrifugal Pumps

Suri Ganeriwala

An Application of Minimum Entropy Deconvolution Technique in Valve Response Speed Measurement

Hiroaki Endo and Tim Chapman

Order Analysis: An Implementation and Its Use in Vibration Time Waveform Signal Processing

Preston Johnson

Acceleration Waveform Analysis: An Advanced Diagnostic Tool in the Detection of Roller Bearing Defect Severity

Tony Barlow

Rotating Machinery Diagnosis Using Synchro-Squeezing Transform Based Feature Analysis

Budhaditya Hazra and Sriram Narasimhan

Session 2C - Diagnostic Sensors

Optical Torque Sensor Design Enables New Opportunities for Machinery Diagnostics and Failure Prevention

Fred Discenzo

Waveguide Vibration Sensors for Aerospace Health Monitoring

Chris Larsen and Nathan Branch

Unique Inline DC Amplifier with Remote Auto-Zero

Thomas Connolly

How Sensor Mounting Affects Measurement

David Corelli

USB Powered Triaxial MEMS Vibration Monitoring System Designed for Field Vibration Testing

Kevin Westhara

Session 3B - Condition Based Maintenance

Evolution to a World Class PM Facility

Ted Melencheck

Anomaly Detection in a Two-Tank System Using an Interacting, Multiple-Model-Based Fault Detection Method

Mohammad Hajizadeh and Michael Lipsett

Validation of Helicopter Gear Condition Indicators Using Seeded Fault Tests

Paula Dempsey and Bruce Brandon

Expert System for Condition Based Maintenance

Mike Behm

Session 3C - Wireless Sensors

Wireless Technologies and Application to Condition Monitoring Systems

Preston Johnson and Douglas Farrell; presented by Aaron Schiele

A Piezoelectric Multilayer-Stack Energy Harvester with Force Amplification for Damage Detection Sensors

Wanlu Zhou, Lei Zuo, and Tian-Bing Xu

Session 3E - Data Analysis

Accelerated Diagnostics & Prognostics Development Using Common Data Libraries

Kenneth Loparo and Fred Discenzo

Big Data: Analog Sensors Flood Asset Monitoring Systems, Data Mining and Data Reduction Tools

Preston Johnson

Big Data Search of Engineering Test Data

Harlan Shober

Big Data Analytics in Manufacturing

Mohamed Abuali

Session 4B - Prognostics

Path Classification and Remaining Life Estimation for Systems Having Complex Modes of Failure

Shane Clarkson and Randall Bickford

Fleet Wide Asset Monitoring: Sensory Data to Signal Processing to Prognostics

Preston Johnson

Condition Monitoring of Non-Linear Time Varying Systems: Gearboxes Subject to Varying Load and Speed

Jordan McBain

Predictive Diagnostic Based on a Fleet-wide Ontology Approach

Jean-Baptiste Leger, Gabriela Medina-Oliva, Maxime Monnin, and Alexandre Voisin

Remaining Useful Life Prediction of Individual Units Subject to Hard Failure

Qiang Zhou, Shiyu Zhou, Xiaofeng Mao, and Mutasim Salman

Session 4C - Failure Analysis

Is Frame Vibration Monitoring Enough to Mitigate the Risk of Loss of Mechanical Integrity for Reciprocating Compressors?

Skip Morrison, Chris Lopez, and Christian Koers

The Impact of Dynamic Loading on Root Cause Failure Analysis

Keith Wagner and Matthew Perricone

Geometric Sensitivity Analysis and Improved Empirical Observation for Reduced-Order Fatigue Life Assessment

Todd Letcher, Onome Scott-Emuakpor, Tommy George, and Casey Holycross

Session 4D - Systems Engineering and Business Case Analysis

Methods to Derive Business Case Analyses

Chris Pomfret

Investigation of Materials for Boundary Layer Control in a Supersonic Wind Tunnel

Alexander Braafladt, John Lucero, and Stefanie Hirt

Critical Prognostics Design Balance within the Integrated Systems Diagnostics Design (ISDD)

Jim Lauffer

ANCFII-Test Rig Support Bearing Trade Study

James Winkel and John Lucero

ANCFII Risk Analysis

John Lucero

Implementation of Performance-Based Acquisition in Non-Western Countries

Fatih Cebeci and Tanzer Gözütok

Session 5B - Applications of Health Management Technologies

Rolls-Royce EHM Successes

Keith Calhoun

Applied Case Study in Information Fusion and Health Management for High Speed Trains

Wade Clark

Collecting and Concentrating Automation Data

Mark Lochhaas

Session 5C - Failure Prevention

How Information Makes All the Difference in Oil Analysis

Patrick Kilbane

The Effects of Airborne Contamination on Industrial Control Electronics

Robert Veale

Corrosion Detection on Natural Gas Pipelines with Micro-Linear Polarization Resistance Sensors

Douglas Brown, Richard Connolly, Duane Darr, Jeffery Morse, and Bernard Laskowski

Cold Spray Technology as a Repair Technique

Victor Champagne and Marc Pepi

Tutorials

Hands-on Diagnostics Workshop

Fred Discenzo

Fundamentals of Signal Processing for Machine Vibration Analysis

Suri Ganeriwala

Sensor Basics for Equipment Health Monitoring

Chris Nemarich