



The Knowledge Network

The 4th IET International Conference on

Railway Condition Monitoring

RCM 2008

18 - 20 June 2008

Derby Conference Centre, Derby, UK



KEY BENEFITS

- Attend the only international conference specifically addressing condition monitoring across all railway sub-systems
- Learn from an international programme of speakers about how the latest monitoring technologies and techniques can improve performance and reliability
- Hear cutting-edge research from academia and real-life industrial case studies

KEYNOTE SPEAKERS

Dr Michael Provost
 Head of Predictive Services Engineering
 Bombardier Transportation, UK

Steve Yianni
 Director of Mechanical and Electrical Engineering
 Network Rail, UK

Guillaume Foeillet
 Head of IGTEM Department
 SNCF, France

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Exhibitors include



Register at www.theiet.org/rcm08

INTRODUCTION

As passenger demands and competition from other modes of transport increase, a safe, reliable and cost-effective railway is crucial for the successful operation of the business. The latest technologies in condition monitoring can offer effective approaches for both fleet and infrastructure maintenance. However, for these technologies to provide successful solutions in the commercial environment, it is important that research and industry come together to discuss the practical applications across all railway sub-systems.

The IET is pleased to organise the fourth in the series of conferences to serve the international community working in this area. Focusing exclusively on condition monitoring for railways, this conference will bring together practical experience from academics, railway operators and railway system suppliers from across the world.

WHO SHOULD ATTEND?

This event will be relevant to all those who are responsible for condition monitoring in the railway sector including: Directors, Heads of Departments, Managers, Specialists and Researchers responsible for:

- Maintenance of infrastructure
- Train operations
- Vehicle design
- Asset management
- Safety assurance
- Technology research and development
- Engineering and product development
- Systems specification and planning
- Business development

ORGANISED BY:

The Institution of Engineering and Technology Railway Network
www.theiet.org/tpn

The Institution of **Engineering and Technology** (IET) is the largest professional engineering society in Europe and the second largest of its type in the world, with 150,000 members worldwide.

The Institution serves engineers and technologists working in an increasingly interdisciplinary, global and inclusive profession – providing technical and professional networks, journals, events and qualifications to meet the needs of today's technology industry.

Speakers will address:

- Condition monitoring technology of all railway sub-systems
- Intelligent infrastructure and asset management strategies
- Event recording and data logging
- Predictive analysis tools and techniques
- State-of-the-art sensing techniques
- Data management, standards, modelling and presentation
- Condition-based maintenance and reliability-centred maintenance
- System management and cost benefit analysis

EVENT PROGRAMME

DAY ONE WEDNESDAY, 18 JUNE 2008

08:00 Registration and Refreshments

**09:00 Plenary Session I
Chairman's Welcome**
Dr Clive Roberts, University of Birmingham, UK

**09:15 Keynote Address
Creating an Intelligent Rail Infrastructure**
Steve Yianni, *Director of Mechanical and Electrical Engineering*, Network Rail, UK

10:00 Refreshments and Exhibition

Session A1: Rolling Stock I Fleet Management

Chairman: Dr Jens Nielsen, Chalmers University, Sweden

10:30 Improving Fleet Performance by Automatic Analysis of Enhanced "Black Box" OTMR Data
A K Burchell, HSBC Rail (UK) Ltd, UK
S R Green, New Southern Railway Ltd, UK

11:00 TAPAS – Delivering Near Real Time Analysis of in Service "Black Box" OTMR Data
N J Clarke, Tessella Support Services, UK

11:30 Condition Monitoring on the Class 390 Pendolino
K Prendergast, Alstom Transport, UK

Session B1: Signalling Equipment I

Chairman: Ian Mitchell, DeltaRail, UK

10:30 Developments in Track Circuit Condition Monitoring
A H Millar, Bombardier Transportation, UK

11:00 Formal Validation Method and Tools for French Computerised Railway Interlocking Systems
A M Antoni, SNCF, France

11:30 The Aging of Signaling Equipment and the Impact on Maintenance Strategies
A M Antoni, SNCF, France

12:00 A Universal Approach to Points Condition Monitoring
D C Shaw, Siemens Transportation Systems, UK

12:30 Lunch and Exhibition

Session A2: System Integration I

Chairman: Steve Yianni, Network Rail, UK

13:30 RailSense®: Improving Reliability and Availability of Rail Assets through Dynamic Modeling
P Boom, Lloyd's Register Rail, The Netherlands
E de Geus, DySI, The Netherlands

14:00 Monitoring of Rail Freight Wagons in Europe with Support of EUREKA Projects
P Kroca, JERID, The Czech Republic

14:30 RCM Data Integration – Ontologies and the Third Tier...
J Elphick, Atkins, UK
R W Lewis, University of Birmingham, UK

15:00 Utilising Appropriate Information Technology to Support Railway Condition Monitoring
D Pitty, D Tickem, Network Rail, UK

Session B2: Infrastructure I

Track Measurements

Chairman: Dr Patrice Aknin, INRETS, France

13:30 Condition Monitoring of Railway Track and Driver Using In-Service Vehicle
H Tsunashima, Y Marumo, T Kojima, Nihon University, Japan

A Matsumoto, Ministry of Land, Infrastructure, Transport and Tourism, Japan
T Mizuma, National Traffic Safety and Environment Laboratory, Japan

14:00 Condition Monitoring of Shinkansen Track Using Commercial Trains
Y Naganuma, M Kobayashi, M Nakagawa, T Okumura, Central Japan Railway Company, Japan

14:30 A New Approach of Assessing Rail Roughness
J Spännar, Banverket, Sweden

15:00 Estimation of Long Wavelength Track Irregularities from On-Board Measurements
S Alfi, S Bruni, Politecnico di Milano, Italy

15:30 Refreshments and Exhibition

Session A3: System Integration II

The InteGRail European Project

Chairman: Dr Jon Elphick, Atkins, UK

16:00 From RCM to Predictive Maintenance: The InteGRail Approach
R Shingler, Bombardier, UK
G Fadin, FAR Systems, Italy
P Umiliacchi, CNC, Italy

16:30 Ontology Driven Railway RCM Data Integration
R W Lewis, C Roberts, University of Birmingham, UK
G Langer, Siemens AG, Germany

17:00 Engineering Knowledge-Based Condition Analyzers for On-Board Intelligent Fault Classification: A Case Study
C Brignone, F Narteni, G Villa, Bombardier Transportation, Italy
M De Luca, L Nana, Medservice.com, Italy
A Tacchella, Università degli Studi di Genova, Italy

Register before Wednesday, 14 May 2008 to gain a discount on your delegate fee
www.theiet.org/rcm08

Register at www.theiet.org/rcm08

Session B3: Asset Management and Reliability Analysis I

Chairman: Guillaume Foeillet, SNCF, France

16:00 The Role of Remote Condition Monitoring in a Modern Railway
D Rooke, M D Bint, ACIC International Ltd, UK

16:30 Potential for Condition Monitoring Advanced Maintenance Inspection on DMU Trains
A Chater, PCMS Eng, UK

17:00 Reducing Vehicle Maintenance Using Condition Monitoring and Dynamic Planning
M Bohlin, M Forsgren, A Holst, B Levin, M Aronsson, R Steinert, Swedish Institute of Computer Science, Sweden

17:30 Close of Day One

DAY TWO THURSDAY, 19 JUNE 2008

08:30 Refreshments and Exhibition

09:00 Plenary Session II - Summary of Day One
Dr Clive Roberts, University of Birmingham, UK

09:15 Keynote Address Beyond Condition Monitoring: From Data to Business Value
Dr Michael Provost, *Head of Predictive Services Engineering*, Bombardier Transportation, UK

10:00 Refreshments

Session A4: Rolling Stock II Vehicle Subsystems

Chairman: Dr Michael Provost, Bombardier Transportation, UK

10:30 Real Time Energy Consumption Monitoring as a Tool for the Freight Trains' Dispatching
B Davydov, V Hopkalo, Far Eastern State Transportation University, Russia

11:00 Traction Motor in Service Multi Technology Condition Monitoring
A Chater, PCMS Eng, UK
S Mitchell, 'one' Railway, UK

11:30 Driver Model Simulation for Railway Brake Systems
H Yamazaki, Railway Technical Research Institute, Japan
Y Marumo, Y Lizuka, H Tsunashima, Nihon University, Japan

12:00 Fault Diagnosis of a Train Door System Based on the Semantic Knowledge Representation
K E Brown, E Migueláñez, D M Lane, Heriot-Watt University, UK

Session B4: Signalling Equipment 2 Switches and Crossings

Chairman: Tim Salter, StrainStall UK Ltd, UK

10:30 Switch Mechanism Diagnosis Using a Pattern Recognition Approach
S A Same, F C Chamroukhi, A P Akin, M A Antoni, INRETS, France

11:00 Incipient Failure Prediction in Actuators Using an Intuitive Adaptive System
C Roberts, J Silmon-Monerri, University of Birmingham, UK

11:30 Switch and Crossing Inspections and Maintenance Management Using Handheld Computers
C S Bonaventura, A M Zarembski, J W Palese, ZETA-TECH, USA

12:00 The Online Monitoring of Railway Electric Switch Machine Using State Observer
A Mirabadi, Iran University of Science and Technology, Iran
I Sadeghi, Institute of Railway Research and Development, Iran

12:30 Lunch and Exhibition

Session A5: Rolling Stock III Wayside Equipment

Chairman: John Clark, CDS Rail, UK

13:30 The Asset Protection Supersite (APS)
D M Reynolds, Central Queensland University, Australia

14:00 Commercially Driven Automated Rail Vehicle Inspection
K Fry, T Robertsson, DeltaRail, UK

14:30 Wayside Monitoring of Metro Lines
R Hudd, K Bladon, Trackside Intelligence Pty Ltd, Australia

15:00 Lineside Acoustic Bearing Monitoring – The Future?
O D Snell, Depot Rail Limited, UK
I Nairne, Southern Railway, UK

Session B5: Infrastructure II Infrastructure and Pantograph

Chairman: Andy Packham, Delta Rail, UK

13:30 MAPS-SFT, A New Tool in the Rail Infrastructure Managers' Toolbox
A P Hayes, MAPS Technology Ltd, UK

14:00 Signature Analysis on Wheel-Rail Interactions for Rail Defect Detection
T K Ho, S Y Liu, C M Cheung, K K Wong, H Y Tam, S L Ho, Hong Kong Polytechnic University, Hong Kong

14:30 Condition Monitoring of Pantograph Contact Strip
S Östlund, Royal Institute of Technology, Sweden
A Gustafsson, Green Cargo AB, Sweden
L Buhkall, Consultant, Denmark
M Skoglund, Banverket Consulting, Sweden

15:00 A Pantograph with Integrated Instrumentation for High Speed Current Collection Measurements
P Keen, R E Phillipotts, S Conway, DeltaRail Group Limited, UK

15:30 Lunch and Exhibition

**Session A6: Rolling Stock IV
Bogie Performance**

Chairman: Professor Roger Goodall, Loughborough University, UK

- 16:00 A New Condition Monitoring Technique for Vehicle Suspensions**
T X Mei, X J Ding, University of Leeds, UK
- 16:30 A Least Mean Squared Approach to Wheel-Rail Profile Estimation**
G A Charles, R M Goodall, R Dixon, Loughborough University, UK
- 17:00 Monitoring Train Speed Using Bogie Mounted Sensors**
T X Mei, H Li, University of Leeds, UK

The conference dinner will be an excellent opportunity to connect with like-minded professionals in a social setting.

Session B6: Asset Management and Reliability Analysis II

Chairman: Dr T K Ho, Hong Kong Polytechnic University, Hong Kong

- 16:00 The Business Case for Remote Monitoring Applications**
J Clark, C Bell, CDSRail, UK
- 16:30 Systems Assurance by In-Service Reliability Evaluation**
S W Mealing, W J Hinsley, Transsol Ltd, UK
- 17:00 Binary Decision Diagrams Applied to Fault Tree Analysis**
F P Garcia Marquez, ETSI Industriales de Ciudad Real, University of Castilla-La Mancha, Spain

17:30 Close of Day Two

19:00 Conference Dinner at Derby Conference Centre

DAY THREE FRIDAY, 20 JUNE 2008

08:30 Refreshments and Exhibition

09:00 Plenary Session II - Summary of Day Two
Dr Clive Roberts, University of Birmingham, UK

09:15 Keynote Address
The IRIS 320 High Speed Measurement Trainset
Guillaume Foeillet, *Head of IGTEM Department* SNCF, France

10:00 Refreshments and Exhibition

**Session A7: Infrastructure III
Structures and Embankments**

Chairman: Robert Hudd, Trackside Intelligence Pty Ltd, Australia

10:30 Applying "Intelligent Infrastructure" to Civil Assets
T D Salter, M Anderson, Straininstall UK Ltd, UK

11:00 Infrastructure Condition Monitoring using Meshed Radio Sensors
M Britton, M S Maddison, Senceive Ltd, UK

11:30 Application of Helicopter High Definition Camera Techniques to Obtain Ideal Data for CBRM
REA Eyre-Walker, G K Earp, EA Technology Ltd, UK

**Session B7: System Integration III
Data Collection**

Chairman: Gerhard Langer, Siemens Transportation, Germany

10:30 The Use of Wireless Technology for Reliable and Cost Effective Remote Condition Monitoring in the Rail Industry
B M Back, Radio-Tech Limited, UK

11:00 Railway Condition Monitoring: As Simple as Shelling Peas, Baking Cakes or Refining Petrol?
M Glover, Westinghouse Rail Systems Ltd, UK
O Traynor, Invensys Rail Group, UK

11:30 Smart Wireless Railway Monitoring System
K Liu, W H Siew, R W Stewart, Y Wang, University of Strathclyde, UK

12:00 Close of Conference

Please note this programme may be subject to change

SPONSORSHIP

The conference will be a key forum for software providers and equipment suppliers to showcase their latest products and raise their profile. A number of exhibition and sponsorship opportunities are available, for further information please contact: Ahmed Ahmed on +44 (0)1438 765 591 and +44 (0) 7912 269543 or email aahmed@theiet.org

CONDITIONS OF BOOKING

Form should be received no later than Wednesday, 11 June 2008. All participants registering less than one week before the date of the event are advised to bring a copy of their registration form with them.

CANCELLATION

In the event of cancellation and provided that written notice is received seven days prior to the event, a refund of 50% of the total fee will be made. If no notice of cancellation is received, no refund can be made. The Institution of Engineering and Technology reserves the right to cancel any event. In this case, the full fee will be refunded unless a mutually convenient transfer can be arranged. Details of event changes or cancellations are available by phoning +44 (0)1438 765 657

NAME SUBSTITUTIONS

Name Substitutions are accepted at any time by fax or email. Fax: +44 (0)1438 765 659 Email: events1@theiet.org

SUPPORTING ORGANISATIONS

Members of supporting organisations who can provide evidence of their affiliation will be admitted at members' rates.

DELEGATES WITH SPECIAL NEEDS

The Institution of Engineering and Technology aims to offer fully accessible events to all of its delegates. Please help us to accommodate any individual needs that you may have by attaching a note to the registration form. We will contact you to discuss this as necessary.

Register at www.theiet.org/rcm08



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If you consent to your details being passed on to the event sponsor(s) please tick here

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Member? Yes No I heard about this event by: Flyer in post Email Advert (Institution Publication) Advert (other) The IETs Website Other

PRICES AND PAYMENT INFORMATION

EARLY BIRD REGISTRATION (on or before 14 May 2008)		£	p
Member	£395.00 (+ £69.13 VAT= £464.13)		
Non-Member	£445.00 (+ £77.88 VAT= £522.88)		
Student */Author	£245.00 (+ £42.88 VAT = £287.88)		
Additional Dinner Guest	£40.00 (+ £7.00 VAT = £47.00)		
STANDARD REGISTRATION (after 14 May 2008)		£	p
Member	£495.00 (+ £86.63 VAT= £581.63)		
Non-Member	£545.00 (+ £95.38 VAT= £640.38)		
Student */Author	£245.00 (+ £42.88 VAT = £287.88)		
Additional Dinner Guest	£40.00 (+ £7.00 VAT = £47.00)		
<input type="checkbox"/> please tick if you are attending the conference dinner	TOTAL REMITTANCE		

*** ALL STUDENTS MUST HAVE THEIR APPLICATIONS ENDORSED BY THEIR PROFESSOR OR HEAD OF DEPARTMENT**
Registration fees include attendance at the sessions, a copy of the CD ROM, morning and afternoon refreshments and lunch each day and the conference dinner.
PAYMENT NOT RECEIVED BEFORE THE EVENT MAY RESULT IN ENTRY BEING DENIED.

Payment must accompany this registration form.
Registration will only be confirmed on receipt of the full payment.
Payment via purchase order is not accepted.

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