

Institution of Engineering and Technology

4th IET International Conference on Railway Condition Monitoring 2008

IET Seminar Digests

June 17-20, 2008
Derby, UK

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571
www.proceedings.com

ISBN: 978-1-60560-722-1

Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2008) by the Institution of Engineering and Technology
All rights reserved.

For permission requests, please contact the Institution of Engineering and Technology
at the address below.

Institution of Engineering and Technology
P.O. Box 96
Stevenage, Hertfordshire
U.K. SG1 2SD

Phone: 01-441-438-767-328-328
Fax: 01-441-438-767-328-375

www.theiet.org

TABLE OF CONTENTS

Improving Fleet Performance by Automatic Analysis of Enhanced “Black Box” OTMR Data	1
<i>A.K. Burchell, S.R. Green</i>	
TAPAS – Delivering Near Real Time Analysis of in Service “Black Box” OTMR Data	7
<i>N.J. Clarke</i>	
Condition Monitoring on the Class 390 Pendolino	13
<i>K. Prendergast</i>	
Developments in Track Circuit Condition Monitoring	19
<i>A H Millar, A Lindsay</i>	
Formal Validation Method and Tools for French Computerized Railway Interlocking Systems	25
<i>A M Antoni, N Ammad</i>	
Binary Decision Diagrams Applied to Fault Tree Analysis	35
<i>F P Garcia Márquez</i>	
A Universal Approach to Points Condition Monitoring	40
<i>D C Shaw</i>	
RailSense®: Improving Reliability and Availability of Rail Assets through Dynamic Modeling	46
<i>P Boom, E de Geus</i>	
Monitoring of Rail Freight Wagons in Europe with Support of EUREKA Projects	48
<i>P Kroca</i>	
RCM Data Integration – Ontologies and the Third Tier	52
<i>R W Lewis, C Roberts, J Elphick</i>	
Utilising Appropriate Information Technology to Support Railway Condition Monitoring	64
<i>D I Pitty, D Tickem</i>	
Condition Monitoring of Railway Track and Driver Using In-Service Vehicle	68
<i>H Tsunashima, T Kojima, Y Marumo, A Matsumoto, T Mizuma</i>	
Condition Monitoring of Shinkansen Track Using Commercial Trains	74
<i>Y Naganuma, M Kobayashi, M Nakagawa, T Okumura</i>	
A New Approach of Assessing Rail Roughness	80
<i>J Spännar</i>	
Estimation of Long Wavelength Track Irregularities from on Board Measurement	85
<i>S Alfi, S Bruni</i>	
From RCM to Predictive Maintenance: The InteGRail Approach	91
<i>R Shingler, G Fadin, P Umiliacchi</i>	
Ontology Driven Railway RCM Data Integration	96
<i>G Langer, R W Lewis, C Roberts</i>	
Engineering Knowledge-Based Condition Analyzers for On-Board Intelligent Fault Classification: A Case Study	104
<i>C Brignone, F Narteni, G Villa, C De Ambrosi, M De Luca, A Tacchella, S Verstichel</i>	

The Role of Remote Condition Monitoring in a Modern Railway	110
<i>M D Bint</i>	
Advanced Maintenance Inspection on DMU Trains	114
<i>A Chater</i>	
Reducing Vehicle Maintenance Using Condition Monitoring and Dynamic Planning	120
<i>M Bohlin, M Forsgren, A Holst, B Levin, M Aronsson, R Steinert</i>	
Real Time Energy Consumption Monitoring as a Tool for the Freight Trains' Dispatching	126
<i>B Davydov, V Gopkalo</i>	
Traction Motor In-Service Multi-Technology Condition Monitoring	128
<i>A Chater, S Mitchell</i>	
Driver Model Simulation for Railway Brake Systems	134
<i>H Yamazaki, Y Marumo, H Tsunashima, Y Iizuka</i>	
Fault Diagnosis of a Train Door System based on the Semantic Knowledge Representation	140
<i>E Migueláñez, K E Brown, D M Lane, R Lewis, C Roberts</i>	
Switch Mechanism Diagnosis Using a Pattern Recognition Approach	146
<i>F C Chamroukhi, A Same, P Aknin, M Antoni</i>	
A Systems-Engineered Intuitive Adaptive Failure Prediction System	150
<i>J Silmon, C Roberts</i>	
Switch and Crossing Inspections and Maintenance Management Using Handheld Computers	159
<i>C S Bonaventura, A M Zarembski, J W Palese</i>	
The Asset Protection Supersite (APS)	165
<i>P Wolstenholme</i>	
Commercially Driven Automated Rail Vehicle Inspection	170
<i>K Fry, T Robertsson</i>	
Wayside Monitoring of Metro Lines	176
<i>K Bladon, R Hudd</i>	
Acoustic Bearing Monitoring – The Future	184
<i>O D Snell</i>	
MAPS–SFT, A New Tool in the Infrastructure Managers' Toolbox	189
<i>A P Hayes</i>	
Signature Analysis on Wheel-Rail Interactions for Rail Defect Detection	195
<i>T.K. Ho, S.Y. Liu, H.Y. Tam, S.L. Ho, Y.T. Ho, K.H. Ho, K.K. Wong, K.Y. Lee</i>	
Condition Monitoring of Pantograph Contact Strip	201
<i>S Östlund, A Gustafsson, L Buhrkall, M Skoglund</i>	
An Instrumented Pantograph for High Speed Current Collection Measurements	207
<i>P M Keen, R E Phillpotts, S Conway</i>	
New Condition Monitoring Techniques for Vehicle Suspensions	212
<i>T X Mei, X J Ding</i>	
A Least Mean Squared Approach to Wheel-Rail Profile Estimation	218
<i>G Charles, R Goodall, R Dixon</i>	

Monitoring Train Speed Using Bogie Mounted Sensors – Accuracy and Robustness	224
<i>T X Mei, H Li</i>	
The Business Case for Remote Monitoring Applications	230
<i>C R Bell</i>	
System Assurance by In-Service Reliability Evaluation	234
<i>S W Mealing, W Hinsley</i>	
The Aging of Signaling Equipment and the Impact on Maintenance Strategies	240
<i>M Antoni, C Meier-Hirmer</i>	
Applying “Intelligent Infrastructure” to Civils Assets	245
<i>T Salter</i>	
Towards the Reality of Intelligent Infrastructure with Wireless Meshed Sensors	250
<i>M S Britton, M S Maddison</i>	
Application of Aerial Photography to Obtain Ideal Data for Condition based Risk Management of Rail Networks	255
<i>R E A Eyre-Walker, G K Earp</i>	
The Use of Wireless Technology for Reliable Remote Condition Monitoring in the Rail Industry	261
<i>B M Back</i>	
Railway Condition Monitoring, As Simple as Shelling Peas, Baking Cakes or Refining Petrol?	266
<i>J Bishop, M Glover, O Traynor</i>	
Smart Wireless Railway Monitoring System	270
<i>K Liu, W H Siew, R W Stewart, Y Wang</i>	

Author Index