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NDT 2019 and MT 2019 – Tuesday 3 September

**09.20 Opening Plenary Paper – Roy Sharpe Prize Lecture –
Advances in modern mass-manufacturing using NDE 4.0 process
based on artificial intelligence**

*Author - Professor R Gr Maev, University of Windsor, Canada
Chair: J Hansen - Room: Ironbridge 3*

10.00 Plenary Paper – RCNDE Showcase

*Author - Professor R Smith, University of Bristol, UK
Chair: J Hansen - Room: Ironbridge 3*

**10.15 Plenary Paper – Book Launch: Golden Egg or Poisoned Chalice?:
The Story of Nuclear Power in the UK**

*Author - A Wooldridge and S Druce
Chair: J Hansen - Room: Ironbridge 3*

10.30 Plenary Paper – The fingerprint of an invisible killer

*Author - T Armitt, Lavender International
Chair: J Hansen - Room: Ironbridge 3*

Session IA – RCNDE Showcase: SHM and sensors

Chair: Professor P Wilcox Room: Ironbridge 3

**11.45 [IA1] Estimating the detection capabilities of permanently
installed sensors**

Author - J Corcoran, Imperial College, UK

12.05 [IA2] Liquid crystal sensors for NDT

Authors - O Trushkevych and R S Edwards, University of Warwick, UK

**12.25 [IA3] Electromagnetic acoustic transducers for guided wave-based
robotic inspection**

*Authors - O Trushkevych¹, S Dixon¹, R S Edwards¹, M Tabatabaeipour²,
G Dobie², C MacLeod², A Gachagan² and S G Pierce²
¹University of Warwick, UK
²University of Strathclyde, UK*

**12.45 [IA4] Phased array electromagnetic acoustic transducers (EMATs)
for surface detection**

*Authors - L Xiang, R S Edwards and S Dixon
University of Warwick, UK*





NDT 2019 and MT 2019 – Tuesday 3 September

Session IB – Additive manufacturing

Chair: **K Pickup** Room: **Wenlock 1 & 2**

11.45 [IB1] Micro-CT measurements of defects in lightweight mirrors for applications in space imaging

Authors - P A Cooper¹, W Sun¹, S B Brown¹ and C Atkins²

¹National Physical Laboratory, UK

²Science and Technology Facilities Council, UK

12.05 [IB2] Inspection of composite parts produced by additive manufacturing: air-coupled ultrasound and thermography

Authors - M A Machado, P L Inácio, R A Santos, A F Gomes, A P Martins, M S Carvalho

and T G Santos

UNIDEMI, NOVA School of Science and Technology, Portugal

12.25 [IB3] Automated complementary NDT inspection system for production of AM parts

Authors - W Vesga¹, B Dutton¹, J R Wright², D Rodriguez-Sanmartin², M Potter³,

T Martin⁴, M Baratoiu¹ and N Lunn³

¹The Manufacturing Technology Centre, UK

²Theta Technologies Limited, UK

³Sonemat, UK

⁴JetSoft Ltd, UK

12.45 [IB4] Ultrasonic phased array inspection of wire plus arc additive manufactured (WAAM) titanium samples

Authors - E Mohseni¹, Y Javadi¹, D Lines¹, R Vithanage¹, E Foster¹, Z Qiu¹, R Zimmermann¹,

C N MacLeod¹, S G Pierce¹, A Gachagan¹, G Marinelli², J Ding² and S Williams²

¹University of Strathclyde, UK

²Cranfield University, UK





NDT 2019 and MT 2019 – Tuesday 3 September

Session **IC** – **Novel techniques and applications**

Chair: **C Bull** Room: **Wenlock 3 & 4**

11.45 [IC1] Laser ultrasound inspection at industrial process speeds

Authors - *B Dutton, J Whicker and W Vesga*
The MTC, UK

12.05 [IC2] Non-linear resonance as a novel self-referencing NDT method for rapid assessment of components

Authors - *D Rodriguez Sanmartin and J Wright*
Theta Technologies Limited, UK

12.25 [IC3] A review of applying the non-destructive testing methods for the detection of landmines

Author - *N Karimian, University of Tehran, Iran*

12.45 [IC4] Non-intrusive inspection (NII) – tomorrow's technology saving costs today

Author - *S Kenny, Eddyfi Technologies, UK*





NDT 2019 and MT 2019 – Tuesday 3 September

Session ID – **Commercial session**

Chair: **M Clapham** Room: **Exhibition Hall 3 presentation area**

11.45 [ID1] Ultrasonic inspection in the material revolution – ultrasonic 2D matrix array camera

Author - *P Rogger, J R Technology, UK*

12.05 [ID2] DR system, yoke and phased array ultrasound instrument

Author - *J Leo, Hatatest Technology, China*

12.25 [ID3] A guided wave solution for corrosion profile measurement

Author - *D Alleyne, Guided Ultrasonics Ltd, UK*

12.45 [ID4] Book Launch:

Golden Egg or Poisoned Chalice?: The Story of Nuclear Power in the UK

Authors - *A Wooldridge and S Druce*





NDT 2019 and MT 2019 – Tuesday 3 September

Session 2A – RCNDE Showcase: Ultrasound and magnetics

Chair: **Professor M Missous** Room: **Ironbridge 3**

14.20 [2A1] Extending the life of an evaporator vessel through testing, inspection, modelling and analysis

Author - P Liddicott, Sellafield Ltd, UK

14.40 [2A2] Expected scattering of elastic waves by rough defects for applications in ultrasonic NDT

Authors - S Haslinger, M Lowe, P Huthwaite and R Craster
Imperial College, UK

15.00 [2A3] Volumetric imaging of defects through a non-planar surface

Author - J McKee, University of Bristol, UK

16.20 [2A4] Ultrasonic immersion testing for depth sizing of crack-like defects in pipes

Authors - R Rachev^{1,2}, A Velichko¹ and P Wilcox¹
¹University of Bristol, UK
²Baker Hughes, UK

16.40 [2A5] SH0 interaction with surface-breaking tilted cracks in plates

Authors - J Combaniere and P Cawley
Imperial College London, UK

17.00 [2A6] Magnetic field frequency optimisation for MFL imaging using QWHE sensors

Authors - J M Watson, CW Liang, J Sexton and M Missous
University of Manchester, UK

17.20 [2A7] Microstructural imaging of ferromagnetic material using integrated quantum well Hall-effect sensor arrays

Authors - CW Liang, J Sexton, M Sadeghi and M Missous
University of Manchester, UK

17.40 [2A8] Magnetic measurements for the assessment of creep damage and detection of aberrant material in power station steels

Authors - J W Wilson¹, A J Peyton¹, D J Allen², A Shibli³ and Y Hasegawa⁴
¹University of Manchester, UK
²IMPACT PowerTech Ltd, UK
³European Technology Development Ltd (ETD), UK
⁴Nippon Steel Technology (NST), Japan





NDT 2019 and MT 2019 – Tuesday 3 September

Session 2B – Composites

Chair: **Dr R Freemantle** Room: **Wenlock 1 & 2**

14.20 [2B1] High-speed inspection of UD CFRP composites

Authors - M A Machado¹, K Niklas Antin², L S Rosado³, P Vilaça² and T G Santos¹
¹UNIDEMI, Portugal
²Aalto University, Portugal
³Universidade de Lisboa, Portugal

14.40 [2B2] Effects of honeycomb core on acoustic emission wave propagation in glass fibre composite plates

Authors - A H Abdulaziz^{1,2}, J P McCrory², K M Holford², M Heday¹ and A Elsabbagh¹
¹Ain Shams University, Egypt, ²Cardiff University, UK

15.00 [2B3] Developing a high-fidelity knowledge base for non-destructive testing and composite material products

Authors - N Gandhi^{1,2}, R Rose², A Croxford³ and C Ward¹
¹Bristol Composites Institute, UK
²National Composites Centre, UK
³University of Bristol, UK

16.20 [2B4] Non-destructive detection of discontinuity of circuit board using image processing techniques

Authors - N Karimian and S Ghafouri Varzaneh
University of Tehran, Iran

16.40 [2B5] A brief review of applications of ANN for NDT defect detection in the aerospace industry

Authors - N Karimian and S Ghafouri Varzaneh
University of Tehran, Iran

17.00 [2B6] On-site inspection of wind turbine blades using shearography with a robotic deployment system

Authors - J Gao¹, H Zheng¹, V Rosas², M Pachos³, J Seton⁴ and X Echarte Azcarate⁵
¹TWI Ltd, UK, ²London South Bank University, UK
³IKnowHow, Athens, Greece, ⁴WRS Cathodic Protection BV, Netherlands
⁵Siemens Gamesa Renewable Energy, Spain

17.20 [2B7] Application of the ultrasonic guided wave tomography in structural health monitoring of composites

Authors - A Jankauskas and L Mažeika
Kaunas University of Technology, Lithuania

17.40 [2B8] Use of non-destructive composite as concrete protective sealer

Authors - H Meshkinfam Fard¹ and S Karimian²
¹University of Tehran, Iran
²University of Leeds, UK





NDT 2019 and MT 2019 – Tuesday 3 September

Session 2C – Automated and robotic NDT

Chair: **Professor I Cooper** Room: **Wenlock 3 & 4**

14.20 [2C1] Dry-coupled ultrasonic thickness measurement deployed using an over-actuated unmanned aerial vehicle

Authors - R J Watson¹, M Kamel², D Zhang¹, C N MacLeod¹, G Dobie¹, S G Pierce¹ and J I Nieto²

¹University of Strathclyde, UK

²Autonomous Systems Lab, Switzerland

14.40 [2C2] Application of robotic technology for floor thickness monitoring of hazardous liquid storage tanks

Author - A Rahbarimanesht, Monition Limited, UK

15.00 [2C3] Computational intelligence approaches for data analysis: the next step of innovation for advanced UT techniques in NDT

Authors - A Gonzalez Rodriguez¹, A Gosselin², R Rhéaume² and N Harrap³

¹TWI, Mexico

²Ondia, Canada

³TWI, UK

16.20 [2C4] Using motion capture systems for NDE

Authors - J Riise, D Carswell, M Lindop, R Sampson and I Cooper
TWI, UK

16.40 [2C5] UT automatic diagnosis using machine learning and numerical databases

Authors - S Le Berre, D Roue, X Artusi, R Miorelli and C Reboud
CEA-LIST, France

17.00 [2C6] Training of artificial intelligence for automated data analysis of phased array ultrasound data

Authors - R Rhéaume and C Catta
Ondia Inc, Canada

17.20 [2C7] Development of a drone-robot hybrid system for industrial plant inspection

Author - A Shibli, European Technology Development, UK

17.40 [2C8] Flexible robotic cell for in-process inspection of multi-pass welds

Authors - D Lines, Y Javadi, E Mohseni, M Vasilev, C MacLeod, R Vithanage, Z Qiu, R Zimmermann, C Loukas, E Foster, G Pierce and A Gachagan
University of Strathclyde, UK





NDT 2019 and MT 2019 – Tuesday 3 September

Session 2D – Commercial session

Chair: **M Freeman** Room: **Exhibition Hall 3 presentation area**

14.20 [2D1] Quantitative analysis of traditional and new customisable ultrasonic flaw detectors

Authors - A Akhlaghi¹, F Lachance² and P Rioux²
¹Sonatest Limited, UK
²Sonatest AP, Canada

14.40 [2D2] Chemical composition of water-washable penetrants: options and respective features

Author - T Howell, Chemetall Ltd, UK

15.00 [2D3] Pulsed eddy current technology benefits and applications

Author - G Cheyne, ETher NDE, UK

16.20 [2D4] High-resolution non-destructive imaging with accelerator-based neutron sources

Authors - K Rittenhouse, M Taylor and J McCumber
Phoenix LLC, UK
B Bloomquist will present this paper

16.40 [2D5] Standardisation, influences, possibilities and risks of applying UV LED technology to fluorescent magnetic particle inspection (MPI) and fluorescent penetrant inspection (FPI)

Author - M Breit, SECU-CHEK GmbH, Germany





09.00 Plenary Paper – Recent industrial applications of laser ultrasonic testing in Toshiba

*Author - M Ochiai, Toshiba Energy Systems & Solutions Corporation/
First Vice President of The Japanese Society for Non-Destructive Inspection (JSNDI)
Chair: C Bull, AWE, UK - Room: Ironbridge 3*

**Session 3A – ‘RCNDE Showcase:
Machine learning, difficult materials and complex structures**
Chair: Professor R Smith Room: Ironbridge 3

09.50 [3A1] Development in automated defect detection for fluorescent penetrant inspection using machine learning

*Authors - N Shipway, P Huthwaite¹, M J S Lowe¹ and T Barden²
¹Imperial College, UK
²Rolls-Royce plc, UK*

10.10 [3A2] A novel feature extraction method of eddy current testing for defect detection based on machine learning

*Authors - Y Tao, W Yin and A Peyton
University of Manchester, UK*

11.00 [3A3] Feature guided wave inspection of seal fins in aero engines

*Authors - J Corcoran¹, E Leinov¹, M Lowe¹ and A Jeketo²
¹Imperial College, UK
²Rolls-Royce plc, UK*

11.20 [3A4] Conductivity profiling of complex objects using multi-frequency eddy current measurements and neural network approach

*Authors - H Tesfalem¹, A J Peyton¹, A D Fletcher¹, M Brown² and J Hampton¹
¹University of Manchester, UK
²EDF Energy, UK*

11.40 [3A5] Improved eddy current testing sensitivity on low-conductivity alloys

Author - A To, University of Warwick, UK





Session 3B – Ultrasound and arrays

Chair: **Dr T Barden** Room: **Wenlock 1 & 2**

09.50 [3B1] TrainNDT – development of an ultrasonic training simulator

Authors - C R Brett¹, L Zhao², S Hide³, O Gilmour³, P Collins⁴ and J Bailey⁵

¹Uniper Technologies Ltd, UK

²TWI Ltd, UK

³Eastpoint Software Ltd, UK

⁴Innotec UK Ltd, UK

⁵Applied Inspection Ltd, UK

10.10 [3B2] Improving UT weld inspection confidence by utilising specifically developed tools

Authors - A Akhlaghi¹, F Lachance² and P Rioux²

¹Sonatest Limited, UK

²Sonatest AP, Canada

11.00 [3B3] Design of a phased array EMAT for inspection applications in liquid sodium

Authors - L Pucci¹, R Raillon¹, L Taupin¹ and F Baque²

¹CEA-LIST, France

²CEA, France

11.20 [3B4] An example NDT apprenticeship project – remote phased array ultrasonic inspection of thin-walled pipes

Author - D O'Hare, Rolls-Royce plc, UK

11.40 [3B5] Defect characterisation using multi-view TFM imaging algorithm

Authors - N Budyn, R Bevan, A Croxford and P Wilcox

University of Bristol, UK





NDT 2019 and MT 2019 – Wednesday 4 September

Session 3C – Radiography

Chair: **Professor K Newton** Room: **Wenlock 3 & 4**

09.50 [3C1] Trip avoidance X-ray inspection (TAXI)

Author - J R McNab, Oceaneering International Services Limited, UK

10.10 [3C2] The fallacy of sharpness in determining digital radiographic image quality

Author - B S White, Carestream Health, USA

11.00 [3C3] Design and performance of an accelerator-based thermal and fast neutron imaging facility

Author - K Rittenhouse, Phoenix LLC, USA

11.20 [3C4] Deployment of digital radiography for subsea inspection of flexible risers

Authors - A L Clarke¹, G Liaptsis¹, S Hall¹, C Forrest¹, P I Nicholson¹, A Kaur²,
B Ma² and M Corsar²

¹TWI Technology Centre (Wales), UK

²London South Bank Innovation Centre, UK

11.40 [3C5] Radiation Protection: Improving the safety of workers exposed to ionising radiation

Author - L Dojcanova
Radiation Safety and Monitoring Section, Division of Radiation, Transport
and Waste Safety, International Atomic Energy Agency (IAEA), Vienna, Austria





NDT 2019 and MT 2019 – Wednesday 4 September

Session 3D – **Commercial session**

Chair: **M Freeman** Room: **Exhibition Hall 3 presentation area**

09.50 [3D1] Online asset monitoring and inspection in extreme environments

Author - *T Stevenson, Ionix Advanced Technologies, UK*

10.10 [3D2] Practical application of acoustic emission

Author - *B Morris, MISTRAS Group Ltd, UK*

11.00 [3D3] The inspection and testing of engineered wraps – mainly offshore components but applicable in general

Author - *D J Johnson, Health & Safety Executive Laboratories, UK*

11.20 [3D4] NDT 4.0 robotics and defect recognition for automated quality control

Author - *J Robbins, Labquip NDT Ltd*

11.40 [3D5] Introduction of NDE UT, virtual teaching tool

Author - *L Grand, Extende, France*





**14.00 President's Honour Lecture –
The future of NDT – crisis or opportunity?**

Author - Professor R Smith, University of Bristol, UK
Chair: J Hansen - Room: Ironbridge 3

Session 4A – RCNDE Showcase: Phased arrays and full matrix capture
Chair: **Dr C MacLeod** Room: **Ironbridge 3**

**14.30 [4A1] Compression for ultrasonic phased array imaging:
compressive sensing and wavelet thresholding**

Authors - R Pyle^{1,2}, R Bevan¹ and P Wilcox¹
¹University of Bristol, UK ²Baker Hughes, UK

**14.50 [4A2] Ultrasonic-based determination of immersion phased array
set-up variables**

Author - R Bevan, University of Bristol, UK

**15.10 [4A3] Imaging for X-optimised imaging algorithms for totally
unknown defects and components**

Authors - A Croxford and E Lopez-Villaverde
University of Bristol, UK

16.15 [4A4] Characterisation of defects from ultrasonic array data

Author - A Velichko
University of Bristol, UK

16.35 [4A5] Improving the imaging performance of non-standard arrays

Authors - J Kirkpatrick¹, J Potter², R Smith¹ and P Wilcox¹
¹University of Bristol, UK ²Verasonics, USA

**16.55 [4A6] Ultrasonic phased array inspection of the fully-automated
multi-pass weld with an intentionally embedded tungsten rod**

Authors - Y Javadi, E Mohseni, M Vasilev, D Lines, C MacLeod, R Vithanage, Z Qiu,
R Zimmermann, C Loukas, E Foster, G Pierce and A Gachagan
University of Strathclyde, UK

**17.15 [4A7] Defect amplitude response approximation using
TCG-calibrated CIVA simulation of PAUT inspection**

Authors - M McInnes¹, R O'Leary¹, A Gachagan¹ and A Glover²
¹University of Strathclyde, UK ²QinetiQ Ltd, UK





Session 4B – In-service inspection

Chair: **Professor I Cooper** Room: **Wenlock 1 & 2**

14.30 [4B1] Probe separation distance (PSD) applied to an industrial girth weld application

Author - C Hoyle, TWI, Wales

14.50 [4B2] Predictive modelling and non-destructive testing (NDT) of oil and gas storage tanks

Authors - E Odiowej, S Thomas, P Nzerem, Y Babayev and V Anye
Nile University of Nigeria

15.10 [4B3] Inspection qualification and NDE reliability

Authors - C Curtis, A Walker and I Atkinson
Wood Inspection Validation Centre (IVC), UK

16.15 [4B4] Vibration monitoring for in-situ health assessment of 3D printed polymer structure

Authors - H I Baqasah¹, F He¹, M A Khan¹, M Asif² and K A Khan³
¹Cranfield University, Bedford, UK
²Auckland University of Technology, New Zealand
³Khalifa University, Abu Dhabi, UAE

16.35 [4B5] Non-destructive testing of welded fatigue specimens of a bucket wheel excavator

Authors - A Maropoulos³, S Papanikolaou^{1,2}, D Fasnakis¹, D Giagopoulos¹,
S Maropoulos² and T Theodoulidis¹
¹University of Western Macedonia, Greece
²Technological Institute of West Macedonia, Greece
³Aristotle University of Thessaloniki, Greece

16.55 [4B6] An MCDM framework for the classification of features from ultrasonic images of plastic pipe welds

Authors - H Yusuf^{1,2}, G Panoutsos² and C Nageswaran¹
¹TWI Ltd, UK
²The University of Sheffield, UK

17.15 [4B7] In-situ non-contact pressure measurement of sealed units using acoustic methods

Authors - E Sharp and S Dixon
University of Warwick, UK





Session 4C – Acoustic emission

Chair: **Dr C Brett** Room: **Wenlock 3 & 4**

14.30 [4C1] Quantitative evaluation of damage evolution in austenitic cast manganese steel crossings using acoustic emission

Authors - M Kongpuang¹, R Culwick¹, A Marsh¹, V L Jantara Junior¹, PVallely^{1,2},
M Papaelias¹ and S Kaenwunruen¹
¹The University of Birmingham, UK
²Network Rail, UK

14.50 [4C2] The effectiveness of acoustic emission testing in corrosion monitoring and qualifying the deferral of storage tank turnarounds

Author - Al Lutfallah Muhammed, Saudi Aramco, Saudi Arabia

15.10 [4C3] Early identification of railway rolling stock wheel and axle bearings defects using acoustic emission techniques

Authors - P Krusuansombat¹, PVallely^{1,2}, S Kaenwunruen¹ and M Papaelias¹
¹The University of Birmingham, UK
²Network Rail, UK

16.15 [4C4] Development and characterisation of fibre-optic acoustic emission sensors

Authors - J O Willberry, G Fernando and M Papaelias
The University of Birmingham, UK

16.35 [4C5] Fit-for-service evaluation of cast manganese railway crossings using combined acoustic emission and finite element analysis techniques

Authors - N Cheputeh¹, PVallely^{1,2}, S Kaenwunruen¹ and M Papaelias¹
¹The University of Birmingham, UK
²Network Rail, UK

16.55 [4C6] Flexible thin-film ultrasonic transducer development for couplant-free high-temperature monitoring

Authors - D Irving, H Trodden and D Hughes
Novosound Ltd, UK

17.15 [4C7] Geometrical acoustics of Lamb waves

Author - VV Krylov, Loughborough University, UK





NDT 2019 and MT 2019 – Wednesday 4 September

Session 4D – **Commercial session**

Chair: **M Freeman** Room: **Exhibition Hall 3 presentation area**

14.30 [4D1] Introducing terahertz NDT solutions and applications

Author - *P Burrows, Baugh & Weedon, UK*

14.50 [4D2] Tagging, searching and storing NDT inspection data

Authors - *D Mapletoft and P Brunnengraeber
Carestream, UK*

15.10 [4D3] Enhanced performance of magnetic flux leakage inspection of storage tanks

Authors - *N R Pearson, A Pullen, R Lieb and M Boat
Eddyfi Technologies, UK*

16.15 [4D4] Practical advantages of connected live devices

Author - *C Udell, Proceq, UK*





NDT 2019 and MT 2019 – Thursday 5 September

09.00 Plenary Paper – The restoration of Merchant Navy-class ‘Canadian Pacific’ and an update on NDT requirements for heritage railway boilers

*Authors - R Peacock and Professor RA Smith, Mid Hants Railway Ltd Watercress Line, UK
First Vice President of The Japanese Society for Non-Destructive Inspection (JSNDI)
Chair: J Hansen, President of BINDT - Room: Ironbridge 3*

Session 5A – RCNDE Showcase: Optical and other methods

Chair: Dr C MacLeod Room: Ironbridge 3

09.45 [5A1] Characterisation of a structured light probe system designed for internal pipework inspection

*Authors - W Jackson¹, G Dobie¹, C MacLeod¹, F Caldwell¹ and C Forester²
¹University of Strathclyde, UK
²Inspection Hire, UK*

10.05 [5A2] SHI for high-resolution and accurate guided wave tomography mapping of corrosion at pipe supports

*Authors - A A E Zimmermann¹, P Huthwaite¹ and B Pavlakovic²
¹Department of Mechanical Engineering, Imperial College UK
²Guided Ultrasonics Ltd, UK*

10.25 [5A3] Appraising near-surface material integrity using electrochemical jet processing

*Authors - A Speidel, I Bisterov, J Mitchell-Smith and A T Clare
University of Nottingham, UK*





NDT 2019 and MT 2019 – Thursday 5 September

Session 5B – **Ultrasonics**

Chair: **Professor A Croxford or Professor P Wilcox** Room: **Wenlock 1 & 2**

09.45 [5B1] Development of standards for full matrix capture/total focusing method ultrasonic technique

Authors - C Wassink¹ and D Chauveau²
¹Eddyfi Technologies, Canada
²Institut de Soudure, France

10.05 [5B2] Inspection of irregularly shaped welds using adaptive TFM imaging

Authors - O Roy, D Leitao and L Le Ber
Eddyfi Technologies, France

10.25 [5B3] Multimode TFM imaging for weld inspection

Authors - K Sy and O Roy
Eddyfi Technologies, France





NDT 2019 and MT 2019 – Thursday 5 September

Session 5C – Electromagnetics

Chair: **Professor A Peyton** Room: **Wenlock 3 & 4**

09.45 [5C1] Using ACFM to inspect high-temperature line welds

Author - M Smith, Eddyfi Technologies, UK

10.05 [5C2] Improvements in the inspection of rail tank cars using ACFM

Authors - M Smith¹, H Sadek² and C Meeker³

¹Eddyfi Technologies, UK

²Eddyfi Technologies, USA

³Union Tank Car Company, USA

10.25 [5C3] Innovative development of NDT techniques for the inspection of high-temperature plant components

Authors - A Shibli and D Robertson

European Technology Development, UK





NDT 2019 and MT 2019 – Thursday 5 September

Session 5D – **Commercial session**

Chair: **N Harrap** Room: **Exhibition Hall 3 presentation area**

09.45 [5D1] Apprenticeships: the NDT success story

Chair - R Lyon, Education and Professional Development Committee, Project Manager,
Trailblazer 3 Apprenticeship Scheme, BINDT

10.05 [5D2] Unique ultrasonic transducer innovations and development from GB Inspection Systems Ltd

Author - J Skidmore, GB Inspection Systems Ltd, UK

10.25 [5D3] Materials testing apprenticeships – new industrial coatings applicator standard

Author - S Cunningham, Skills Training UK





NDT 2019 and MT 2019 – Thursday 5 September

14.00 Plenary Paper – Changing 1000 small things – How we are working for diversity and inclusion in NDT

*Author - K Kirk, Chair, BINDT Diversity and Inclusion Advisory Group
Chair: J Hansen - Room: Ironbridge 3*

Session 6A – In-service inspection

Chair: C Bull Room: Ironbridge 3

11.45 [6A1] Inspection for corrosion at trunnion pipe supports

*Authors - H R Peramatzis¹ and C Scales²
¹ESR Technology, UK
²HSE, UK*

12.05 [6A2] Inspection of corrosion under pipe supports (CUPS)

*Authors - S F Burch and H R Peramatzis
ESR Technology, UK*

12.25 [6A3] Moisture detection imaging (MDI) for CUI inspection programmes

Author - B Anderson, Acuren Inspection, Texas

12.45 [6A4] The methodology of wall thickness measurements using guided wave modes

Author - D Alleyne, Guided Ultrasonics, UK

13.05 [6A5] Unique challenges of performing NDE behind the reactor vessel lower internals thermal shield

Author - M Goodman, WesDyne, Sweden

13.25 [6A6] Quantitative electromagnetic measurements of in-service systems

Authors - G Finch, R Guilizzoni and S Harmon, National Physical Laboratory





NDT 2019 and MT 2019 – Thursday 5 September

Session 6B – Ultrasonics

Chair: **Professor A Croxford** or **Professor P Wilcox** Room: **Wenlock 1 & 2**

11.45 [6B1] 2D and 3D ultrasound imaging of crack-like defects with a fast reconstruction algorithm in the Fourier domain

Authors - S Robert¹, L Merabet¹, F Cartier¹ and C Prada²

¹CEA-LIST, France

²Institut Langevin, ESPCI Paris, France

12.05 [6B2] Benefits of PWI weld inspection for attenuative materials

Authors - A Caulder¹, G Dao¹, N Laroche², E Carcreff², Z Xu² and D Braconnier²

¹Advanced OEM Solutions, USA

²The Phased Array Company, West Chester, USA

C Thibault will present this paper

12.25 [6B3] Fully flexible thin-film ultrasonic array for use in industrial NDE applications

Authors - B Rocks, D Irving, F Gaudenzi and D Allan Hughes

Novosound Ltd, UK

12.45 [6B4] Simulation of ultrasonic phased array inspection of CANDU pressure tubes

Authors - H Zhao, A Gachagan and G Dobie

University of Strathclyde, UK

E Mohseni will present this paper

13.05 [6B5] Limitations and challenges of ultrasonic measurements in petroleum derivatives

Authors - J H Kern, G Ptaszek, W Guo and V Seelan

TWI, UK

13.25 [6B6] THIS SLOT IS AVAILABLE FOR A LATE SUBMISSION





NDT 2019 and MT 2019 – Thursday 5 September

Session 6C – Electromagnetics

Chair: **Professor A Peyton** Room: **Wenlock 3 & 4**

11.45 [6C1] The high-voltage spark testing method for protective and functional dielectric coatings on a conductive substrate: increasing sensitivity and results reliability

Authors - V A Syasko and A S Musikhin
Constanta Ltd, Russia

12.05 [6C2] Pulsed eddy currents for estimation of remaining ligament under steel corrosion scabs

Authors - V Demers-Carpentier, M Rochette, S Champagne, D Deschatelets,
M M Sisto and A Potvin
Eddyfi Technologies, Canada
L Rouff will present this paper

12.25 [6C3] The use of the electrical potential drop method for the non-destructive determination of creep-induced damage in pressure vessel components at elevated temperatures

Authors - A Wojcik¹, M Waitt², A Santos² and A Shibli³
¹University College London, UK
²Matelect Ltd, UK
³European Technology Development, UK

12.45 [6C4] Simulation of eddy current testing of steam generator tubes with wear and secondary side magnetite deposits

Authors - T Sollier¹, J M Decitre¹, A Vigneron² and E Demaldent²
¹IRSN, France
²CEA-LIST, France

13.05 [6C5] Establishment of a non-invasive electromagnetic method for monitoring of blood-glucose concentration

Author - N Karimian, University of Tehran, Iran

13.25 [6C6] Application of EM method for non-destructive testing and restoration of archaeological sites

Authors - N Karimian and A Ghodousian, University of Tehran, Iran





NDT 2019 and MT 2019 – Thursday 5 September

Session 6D – Commercial session

Chair: **N Harrap** Room: **Exhibition Hall 3 presentation area**

11.45 [6D1] Introduction of the SmartUEI, an all-in-one inspection device that combines many UT and ET applications within one tool only

Author - *S Charlot, Testia (an Airbus Company), UK*

12.05 [6D2] Innovation, application and solution: the complete NDT inspection support organisation

Authors - *A Schofield and M Best
Lavender International NDT*

12.25 [6D3] Title to be confirmed

Author - *D Precious, IMechE Argyll Ruane*

12.45 [6D4] UK AM strategy

Author - *P Urwin, Additive Manufacturing UK Strategy Steering Group*

13.05 [6D5] Live demonstration of Ondia artificial intelligence software for PAUT data analysis

Author - *N Harrap, TWI, UK*

13.25 [6D6] X-ray technology and NDT

Author - *J Leach, Hamamatsu*

