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<th>Time</th>
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<th>Author(s)</th>
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<tr>
<td>09.20</td>
<td>Roy Sharpe prize lecture - A vision of ultrasonic guided wave NDT and SHM inspection potential</td>
<td>Author - Dr C Lissenden, Penn State University will present the opening plenary – Whitworth Suite</td>
<td>N/A</td>
</tr>
<tr>
<td>10.45</td>
<td>Industrial production process control with advanced helix and cone beam computed tomography</td>
<td>Authors - O Brunke, R Evans and T Hemberger  GE Measurement &amp; Control</td>
<td>1</td>
</tr>
<tr>
<td>11.10</td>
<td>Development of the low-power and highly-sensitive GaAs 2DEG DC linear/unipolar Hall-effect integrated circuit</td>
<td>Authors - M Sadeghi and M Missous  University of Manchester</td>
<td>2</td>
</tr>
<tr>
<td>11.35</td>
<td>Development of eddy current tangential transducers for inspection of threads of pump compressor and drill pipes</td>
<td>Authors - V Syasko¹, P Solomenchuk¹ and A Polacek² ¹Constanța Ltd ²NDT1 Kraft Ltd</td>
<td>10</td>
</tr>
<tr>
<td>12.00</td>
<td>Inexpensive spatial position system for the improvement of manual ultrasound NDT</td>
<td>Authors - M A A Rashed, T P Sattar &amp; O A Oumar  London South Bank University</td>
<td>25</td>
</tr>
</tbody>
</table>
### Session 1B – NDT: Putting theory into practice

**Chair:** Mr J Hansen  
**Buckingham Suite**

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<th>Time</th>
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<th>Authors</th>
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<tbody>
<tr>
<td>10.45</td>
<td>Developing new-generation eddy current transducer (ECT) flaw detectors to meet client needs</td>
<td>Author - J Hansen  Ether NDE</td>
</tr>
</tbody>
</table>
| 11.10 | Ultrasonic guided wave mode conversion from transducer coupling      | Authors - P S Lowe¹,², S Fateri¹,² and P Mudge¹  
¹TWI Ltd Granta Park  ²Brunel University  S Fati will present |
| 11.35 | Eddy current array characterisation                                  | Authors - R Hughes  University of Warwick  |
| 12.00 | The factors that affect the defect sizing capabilities of the magnetic flux leakage technique | Authors - M Boat, N Pearson, R Lieb, J Davies, R James and B Woodhead  
SilverwingUK LTD |

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¹TWI Ltd Granta Park  ²Brunel University  S Fati will present
## Session 1C – Simulation

**Chair:** Em Prof J Gryzagoridis  
**Palace 6**

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<tr>
<td>10.45</td>
<td><strong>Validation of PZFlex for simulation of ultrasonic array imaging applications</strong></td>
<td>J Dobson, A Tweedie, G Harvey and A Gachagan</td>
<td>University of Strathclyde</td>
</tr>
<tr>
<td>11.10</td>
<td><strong>Simulation for the impact damage detection in composites by using near-field microwave waveguide imaging</strong></td>
<td>Z Li, A D Haigh, C Soutis and A A P Gibson</td>
<td>University of Manchester</td>
</tr>
<tr>
<td>11.35</td>
<td><strong>Ultrasonic simulation to design a high-frequency ultrasonic technique to inspect friction stir welded components</strong></td>
<td>S Avramidis, D Yan, M Lindop and I Cooper</td>
<td>TWI Technology Centre (Wales)</td>
</tr>
<tr>
<td>12.00</td>
<td><strong>An implementation of rectangular infinite absorbing boundaries for acoustic simulation</strong></td>
<td>C Lee, G-M Zhang and D Harvey</td>
<td>Liverpool John Moores University</td>
</tr>
</tbody>
</table>
Session 2A – Applications 2  
*Chair: Prof S Dixon  Whitworth Suite*

14.00  **Development of an ultrasonic inspection system to detect kissing bonds in friction stir welded components**  
*Authors - D Yan1, S Avramidis1, D Liaptsis1, M Lindop1, I Cooper1 S Michau2  
A Nguyen-Dinh2, J Hettler3, M Tabatabaepour3, S Delrue3, KV D Abeele2  
and F Perrier  
1TWI Technology Centre (Wales), 2Vermont SA and  
3K.U.Leuven Campus Kortrijk*

14.25  **THIS SLOT IS AVAILABLE FOR A LATE SUBMISSION**  
*Authors: B Ward  GE Measurement & Control*

14.50  **Automating lift-off compensation for the inspection of painted welds using single-probe eddy current testing technology**  
*Authors - B Ward  GE Measurement & Control*

16.15  **Incremental permeability and magnetic Barkhausen noise for the assessment of microstructural changes in Grade 91 power station tubes**  
*Authors - JW Wilson1, N Karimian1, A J Peyton1, J Liu2, N Kahlon2 and C L Davis2  
1University of Manchester  2University of Birmingham*
Session 2B – Human elements of NDT
Chair – Dr I Baillie Buckingham Suite

14.00  EPSRC fellowships in performance and inspection
Authors - D Smith  EPSRC

14.25  Socialising NDT – using connectivity technology to increase POD, decrease false calls and make faster decisions on indications
Authors - B Ward  GE Measurement & Control

14.50  Parallel single-view multiplicative algebraic reconstruction technique for medical imaging
Authors - M Bajpai¹, P Gupta² and P Munshi²
1Indian Institute of Information Technology, Design & Manufacturing, Jabalpur
2Indian Institute of Technology Kanpur

16.15  HOIS JIP experience in validation of techniques and personnel for advanced in-service inspection applications in the oil & gas industry
Authors - S F Burch and H R Peramatzis  ESR Technology
Session 2C – Data processing and validation
Chair – Prof M Lowe  Palace 6

14.00  A new phase diversity-based algorithm for ultrasonic array imaging of scattering materials in NDE
Authors - R Gongzhang, A Gachagan and B Xiao  University of Strathclyde

14.25  The effect of surface roughness on extrapolation from C-scan data using extreme value theory
Authors - D Benstock and F Cegla  Imperial College London

14.50  Towards a validation protocol for new NDT capabilities in the air domain
Authors - A Ballisat¹, R Smith¹, D Hallam² and P Wilcox¹
¹University of Bristol  ²Defence Science and Technology Laboratory
Porton Down

16.15  Validation of analytical methods for longitudinal and transverse dynamic response of a non-contact electromagnetic sensor on cylindrical metal samples
Authors - N Karimian, Y Zhao, W Yin and A J Peyton
School of Electrical and Electronic Engineering, University of Manchester

16.40  Plenary Paper – Applications of electromagnetic inspection: from engineering materials to people screening to foodstuffs for academia and industry
Author - A Peyton, Manchester University  Whitworth Suite
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<tr>
<td>09.00</td>
<td>Plenary</td>
<td><strong>Plenary Paper: BINDT strategy and the NDT and CM communities</strong></td>
<td>Author - C Sinclair, CEO of BINDT</td>
<td>Whitworth Suite</td>
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<tr>
<td>09.15</td>
<td>Plenary</td>
<td><strong>Plenary Paper: The FSN racing car</strong></td>
<td>Author - Mesha Potton, University of Northampton</td>
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<tr>
<td>09.55</td>
<td>Session</td>
<td><strong>Maximum array image resolution and its practical implications</strong></td>
<td>Authors - A Croxford and P Wilcox</td>
<td>University of Bristol</td>
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<tr>
<td>10.20</td>
<td>Phased</td>
<td><strong>Small bore phased array UT (SBPAUT) – the importance of qualification and experience</strong></td>
<td>Authors - S Adams  Doosan Babcock</td>
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<tr>
<td>11.15</td>
<td>Array I</td>
<td><strong>A fast and efficient ultrasonic array imaging software platform</strong></td>
<td>Authors - T Lardner, J Dziewierz, A McGilp, A Prakash TK, R Gongzhang, B Xiao and A Gachagan  University of Strathclyde</td>
<td></td>
<td>142</td>
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<tr>
<td>11.40</td>
<td></td>
<td><strong>Non-linear ultrasonic array imaging of fatigue cracks</strong></td>
<td>Authors - J Potter and A Croxford</td>
<td>University of Bristol</td>
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<td>12.05</td>
<td></td>
<td><strong>Development and implementation of calibration process for full matrix capture</strong></td>
<td>Authors - S Mosey, M Sutcliffe, M Weston, B Knight-Gregson and D Liaptsis TWI Technology Centre (Wales)</td>
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## Session 3B – Composites I
**Chair:** Dr E A Birt  Buckingham Suite

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<tr>
<td>09.55</td>
<td><strong>X-ray computed tomography of composites</strong></td>
<td>Authors - F Leonard, J Stein, M Gresil and C Soutis  University of Manchester</td>
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<td>10.20</td>
<td><strong>CT application in dimensional measuring delamination of CFRP caused by drilling</strong></td>
<td>Author - N Kourra  University of Warwick</td>
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<td>11.15</td>
<td><strong>Relating NDT data to mechanical performance loss in impact-damaged composites</strong></td>
<td>Authors - D Aylett¹, I Cooper¹ and J C Arnold² ¹TWI Technology Centre (Wales) ²Swansea University</td>
<td>158</td>
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<tr>
<td>11.40</td>
<td><strong>Use of 3D non-destructive characterisation for modelling the mechanical properties of as-manufactured composite components</strong></td>
<td>Authors - L J Nelson, N Xie, R A Smith and S R Hallett  Faculty of Engineering, University of Bristol</td>
<td>170</td>
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<tr>
<td>12.05</td>
<td><strong>THIS SLOT IS AVAILABLE FOR A LATE SUBMISSION</strong></td>
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<td>N/A</td>
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</table>
Session 3C – Pipeline inspection
Chair: Dr B Fernandes  Palace 6

09.55  AUT inspection of pipeline girth welds evaluating strengths and limitations of zonal discrimination approach
Authors - R M Nardo¹ and K Seward²
¹NDT Engineer, AdES NDT Ltd  ²Specialist NDT Engineer, Subsea 7

10.20  Differentiation of 3D scanners and their positioning method when applied to pipeline integrity
Author - P H Allard and J A Lavoie  Creaform

11.15  An assessment of mecanum wheels for non-destructive testing (NDT) applications
Authors - W A Blyth¹, ², D R W Barr¹, N Hankinson¹ and F R Baena²
¹Phoenix Inspection Systems Ltd  ²Imperial College London

11.40  Experimental study of A0 Lamb wave tomography on pipes
Authors - M Seher, P Huthwaite, M J S Lowe and P Cawley
Imperial College London

12.05  Development of subsea radiography using a marinised DDA
Authors - J R McNab¹, D Scoville¹, D Keck² and R Venkatachalam³
¹Oceaneering  ²BP America Inc  ³GE
### Session 3D – BINDT developments

**Chair:** Mr S Lavender and Mr C Sinclair  
**Location:** Palace 7

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<td>09.55</td>
<td>Developments in personnel certification</td>
<td>Author - N Scutt  BINDT</td>
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</table>
| 10.20 | **BINDT/AINDT** harmonisation                                         | Authors - L Dick¹ and C Sinclair²  
              ¹AINDT  ²BINDT                                                       | 217  |
| 11.15 | Developments in pathways to engineering registration                  | Authors - C Bull  Chair, MQ&E Committee, BINDT                             | 218  |
| 11.40 | PCN UT of corrosion                                                  | Author - S Lavender MBE  Lavender International NDT                       | 219  |
| 12.05 | **Title to be confirmed**                                            | Author - R Lyon  TBC                                                      | 220  |
### Session 4A – Phased array 2

**Chair:** Dr A Gachagan  Whitworth Suite

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<tbody>
<tr>
<td>14.15</td>
<td>Inspection of complex components using 2D arrays and TFM</td>
<td>A McGilp¹, T Lardner¹, J Dziewierz¹, A Gachagan¹, J Mackersie¹ and C Bird²</td>
<td>University of Strathclyde</td>
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<td></td>
<td></td>
<td>¹University of Strathclyde  ²Doosan Babcock</td>
<td>221</td>
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<tr>
<td>14.40</td>
<td>Near-surface defect characterisation using ultrasonic arrays</td>
<td>P Yu, J Zhang, T Gang and B W Drinkwater  University of Bristol</td>
<td>230</td>
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<td>15.30</td>
<td>A new state-of-the-art portable phased array ultrasonic technique</td>
<td>P Benoist¹, G Neau¹, F Cartier² and S Robert²</td>
<td>M2M ²CEA</td>
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<tr>
<td>15.55</td>
<td>Mechanised testing of solid rail axles with consideration of</td>
<td>W Kleinert  GE Measurement &amp; Control</td>
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<td></td>
<td>geometry influences using phased array</td>
<td>232</td>
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<tr>
<td>16.20</td>
<td>An investigation of ultrasonic array performance for inspecting</td>
<td>V Pamel¹,², P Huthwaite¹, C Brett² and M Lowe¹</td>
<td></td>
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<tr>
<td></td>
<td>polycrystalline materials</td>
<td>¹Imperial College London  ²E.ON Technologies (Ratcliffe) Limited</td>
<td>233</td>
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<tr>
<td>17.05</td>
<td>The future for NDT is bright. Can we make it brighter?</td>
<td>B A McGrath, AMEC Commercial  Whitworth Suite</td>
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<tr>
<td>17.25</td>
<td>President’s Honour Lecture – NDT from the customer’s perspective</td>
<td>M Dowell, IMechE  Whitworth Suite</td>
<td>335</td>
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</table>
NDT 2014 Conference Topics - Wednesday 10th

Session 4B – Composites 2
Chair: TBC  Buckingham Suite

14.15  **PAUT inspection of complex-shaped composite materials through 6 DOFs robotic manipulators**
Authors - B Wright¹, I Cooper¹, P I Nicholson¹, C Mineo² and S G Pierce²
¹TWI Technology Centre, Wales  ²University of Strathclyde

14.40  **Methods for fibre-orientation characterisation in monolithic carbon-fibre composites**
Author - L J Nelson, C Fraij and R A Smith
Ultrasonics and NDT Group, University of Bristol

15.30  **Towards the 3D characterisation of GLARE and other fibre-metal laminate composites**
Authors - R A Smith¹, I A Veres² and V J Pinfield³
¹University of Bristol  ²Research Center for Non-Destructive Testing GmbH ³Loughborough University

15.55  **In-service inspection – Typhoon / A400M / Dreamliner**
Authors - Speaker to be confirmed

16.20  **Portable wireless ultrasonic systems for remote inspection**
Author - C Zhong and A Croxford and P Wilcox  University of Bristol
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<tr>
<td>14.15</td>
<td>RFID sensor system for detecting corrosion progression using transient responses</td>
<td>A I Sunny, G Y Tian and M Alamin, Newcastle University</td>
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<td>14.40</td>
<td>Echo state network applications in structural health monitoring</td>
<td>A J Wootton, C R Day and P W Haycock, Keele University</td>
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<tr>
<td>15.30</td>
<td>Non-destructive testing using shear horizontal (SH) ultrasound generated and detected by periodic permanent magnet electromagnetic acoustic transducers (PPM EMATs)</td>
<td>P A Petcher, S E Burrows and S Dixon, University of Warwick</td>
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<tr>
<td>15.55</td>
<td>Thermographic NDE advisory and guidance system</td>
<td>D P Almond, S Angioni, and S G Pickering, 1RCNDE, 2University of Bath</td>
</tr>
<tr>
<td>16.20</td>
<td>Development of advanced ultrasonic technology for automatic solid axle defect detection</td>
<td>J Peng, C Peng, Y Zhang, B Zhao, L Du, 1Southwest Jiaotong University, 2Chengdu Lead Science &amp; Technology Co Ltd</td>
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### Session 4D – TBC

**Chair: Dr S Burch  Palace 7**

| Time  | Title                                                                 | Authors                                                                                                                                  | Affiliation/University                        |
|-------|-----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| 14.15 | **Measurement of residual stresses in reactor components using X-ray technique** | H N Singh, P Mishra and V P Jathar  
Post Irradiation Examination Division, Bhabha Atomic Research Centre, Mumbai                                                                 |
| 14.40 | **Electrodynamic flexural ultrasound transducers**                     | T J R Eriksson, S M Dixon and S N Ramadas  
University of Warwick                                                                                                                     |
| 15.30 | **Speckle reduction in ultrasound non-destructive evaluation of coarse-grained material using a statistical estimation method** | B Xiao, R Gongzhang, T Lardner, R L O’Leary and A Gachagan  
University of Strathclyde                                                                                                                |
| 15.55 | **Defect detection in ferromagnetic aircraft parts using hybrid EMAT and eddy current sensor** | S Thomas¹, O Ubadike¹ and E C Ashigwuike²  
¹Air Force Institute of Technology, Optimizing Local Engineering, Nigerian Airforce Base  ²Brunel University |
| 16.20 | **Eddy current array probe for crack detection and sizing in carbon steel welds** | L Beaulieu-Charbonneau, M Sirois, S Parmentier, N Decourcelle  
and M Grenier  Eddyfi NDT Inc  
A Greenbank will present                                                                                                                |
Session 5A – Modelling 1
Chair: Dr R Chapman  Whitworth Suite

09.45  Modelling grain-scattered ultrasound in austenitic stainless steel welds: a hybrid model
Author - O Nowers  Rolls-Royce Marine  University of Bristol

10.10  Ultrasonic modelling of coarse-grained austenitic steel
Authors - S Avramidis, M Weston and D Liaptsis
TWI Technology Centre (Wales)

10.35  Utilising non-destructive inspection information for damage tolerance evaluation of composite structures
Authors - S Giannis¹, V Mateják¹ and R Freemantle²
¹Element Materials Technology  ²Wavelength NDT Ltd
Session 5B – Composites 3
Chair: Dr C Brett  Buckingham Suite

09.45  Advancements in non-destructive testing of wind rotor blades
Author - S A Nielsen¹ and M Troedsson²
¹Sensor and NDE Innovation, Force Technology 
²Wind Energy Business Development

10.10  On the equivalent flexural rigidity of sandwich composite panels
Authors - J Gryzagoridis¹, G Oliver¹ and D Findeis²
¹Cape Peninsula University of Technology  ²University of Cape Town

10.35  Damage characterisation in composite materials under buckling test using acoustic emission waveform clustering technique
Authors - S Kh Al-Jumaili¹,², M J Eaton¹, K M Holford¹, J P McCrory¹ and R Pullin¹
¹Cardiff University  ²University of Basrah, Engineering College
Session 5C – **Applications 3**  
*Chair: Mr N Harrap  Palace 6*

09.45  **Development and validation of an automated ultrasonic system for the non-destructive evaluation of welded joints in thermoplastic storage tanks**  
*Author - M Spicer, F Hagglund and M Troughton  TWI Ltd, Cambridge*

10.10  **Matching layers for a waveguide ultrasonic transducer for flow measurement in hostile environments**  
*Authors - M Laws¹, S N Ramadas² and S Dixon¹*  
¹University of Warwick  ²Elster NV/SA, Essen

10.35  **Ultrasonic wall-loss monitoring of rough surfaces**  
*Authors - A Gajdacsi and F Cegla  Imperial College London*
Session 6A – **Modelling 2**  
*Chair: Dr B Chapman  Whitworth Suite*

**11.15** An estimation method for ultrasonic defect echo signal energy of inside wall longitudinal defect detection of pipes with small diameter and thick wall  
*Authors - H Sun, S Zhou, L Cui, D Xiao and C Xu  
Beijing Institute of Technology*

**11.40** Selection/rejection of projection datasets obtained from a micro CT scanner for tomographic reconstruction  
*Authors - M Bajpai\(^1\), T P Singh\(^2\) and P Munshi\(^2\)  
\(^1\)Department of Computer Science & Engineering, Indian Institute of Information Technology Jabalpur  
\(^2\)Nuclear Engineering & Technology Programme, Indian Institute of Technology Kanpur*

**12.05** THIS SLOT IS AVAILABLE FOR A LATE SUBMISSION

**12.30** Plenary Paper – Computer vision in X-ray testing  
*Author - D Mery, Department of Computer Science, Universidad Catolica de Chile  
Whitworth Suite*
Session 6B – **Applications**  
*Chair: Dr C Brett  Buckingham Suite*

**11.15** THIS SLOT IS AVAILABLE FOR A LATE SUBMISSION

**11.40** Measurement of compressive strength and rebar parameters of reinforced concrete in buildings in Nairobi, Kenya  
*Authors - W M Kairu¹, M M Gatari¹, D M Maina¹, M L Muia² and J K Birir¹*  
¹Institute of Nuclear Science and Technology, University of Nairobi  
²Technical University of Kenya

**12.05** Characterisation of acoustic emissions from mechanical seals for fault detection  
*Authors - H Towsyfyan, O Hassin, F Gu and A Ball  University of Huddersfield*
### Session 6C – Ultrasonic applications

**Chair:** Mr N Harrap  
**Palace 6**

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<td>11.15</td>
<td>Guided wave EMATs for the detection of corrosion in pipelines</td>
<td>M Clough, P Petcher and S Dixon</td>
<td>University of Warwick</td>
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<td>11.40</td>
<td>Use of non-linear ultrasonic guided waves for early damage detection</td>
<td>Y Liu, C J Lissenden and J L Rose</td>
<td>The Pennsylvania State University</td>
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<tr>
<td>12.05</td>
<td>Quantitative simulation of ultrasonic and EMAT arrays using FEM and FDTD</td>
<td>Y Xie, W Yin and A Peyton</td>
<td>University of Manchester</td>
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</table>
Roy Sharpe Prize Lecture

09.20 **Roy Sharpe prize lecture - A vision of ultrasonic guided wave NDT and SHM inspection potential**

*Author - Dr C Lissenden, Penn State University will present the opening plenary – Whitworth Suite*