

19th World Conference on Non-Destructive Testing (WCNDT 2016)

Munich, Germany
13 - 17 June 2016

Volume 1 of 6

ISBN: 978-1-5108-2949-7

Printed from e-media with permission by:

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



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

License to NDT.net
Copyright© (2016) by the authors
All rights reserved.

Printed by Curran Associates, Inc. (2016)

For permission requests, please contact NDT.net
at the address below.

NDT.net
Rheinalstr 3
53498 Bad Breisig
Germany

Phone: + 49 2633 4756670
Fax: + 49 3212-1030513

info@ndt.net

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

VOLUME 1

What Makes a Good Online Exhibition	1
<i>Diederichs, Rolf</i>	
Improvements to Image Processing Algorithms Used for Delamination Damage Extraction and Modeling	2
<i>Stefaniuk, Michal; Dragan, Krzysztof</i>	
Practical Application of Total Focusing for Sizing of Imperfections in Welded Joints	10
<i>Berke, Michael; Koralewski, Stefan; Roye, Werner; Le Ber, Laurent; Kaps, Ulrich</i>	
The Use of Acoustic Emission Method for Diagnosis of Damage of Pneumatic Cylinders	19
<i>Mazal, Pavel; Vlasic, Frantisek; Mahmoud, Houssam; Jana, Miroslav</i>	
Heat Treatment and Tension Curves in Contemporary Steel Materials Monitored by Acoustic Emission	29
<i>Por, Gabor; Bereczki, Peter; Fekete, Balazs; Trampus, Peter</i>	
Monitoring of the Reactive Air Brazing by Acoustic Emission Analysis	37
<i>Zielke, Reiner; Tillmann, Wolfgang; Kuck, Marius</i>	
The Detection of Different Stages of the Delaminating in the Pressure Vessels Shells by the Ultrasonic and Acoustic Emission Technique	45
<i>Zotov, Konstantin; Rastegaev, Igor; Gomera, Victor; Sokolov, Vladimir Leonidovich; Fedorov, Vyacheslav Petrovich; Smimov, Anatoly</i>	
Optimization of Spot Welding Processes in Low Carbon Hot Rolled Sheets	61
<i>Butt, Asif; Saleem, Imran</i>	
PHAsis-one – Phased Array Spotweld Inspection System	68
<i>Roddewig, Edgar; Vogt, Benita</i>	
Remanent Magnetization for Non-Destructive Testing of Spot Welds	72
<i>Mathiszik, Christian; Zschetzsche, Jörg; Großmann, Christoph; Füssel, Uwe</i>	
Development of an Automated Ultrasonic Inspection Device for Quality Control of Spot Welds	83
<i>Acebes, Montserrat; Delgado de Molina, Rafael; Gauna, Iñaki; Thorpe, Nigel; Guerra, Juan Carlos</i>	
Inspection of the Aluminium Alloys Degradation in Aging Aircraft Components Based on Eddy Current Method Application	91
<i>Uchanin, Valentin; Ostash, Orest; Golovatiuk, Jurij; Semenets, Oleksandr; Kovalchuk, Leonid; Lutsenko, Gennadii; Opanasenko, Anton</i>	
Development of CFRP Aircraft Doors with the Interaction of NDT and Strength Analysis	101
<i>Schmiedel, Patrik; Holzheimer, Manuel</i>	
Structural Health Monitoring of Compressor and Turbine Blades with the Use of Variable Reluctance Sensor and Tip Timing Method	105
<i>Wachlaczko, Michal; Witos, Miroslaw</i>	
Dynamic and Static Determinations for Anisotropic Material Constants of Additive Manufacture in Nondestructive Testing	113
<i>Huang, Yu-Hsi; Huang, Tai-Rong</i>	
Animated View for Detection of Hairline Fracture of the Cooling Hole of a Tornado Jet Turbine Blade by a CAD Based on the De-Convolution Technique	121
<i>Chui, Kui-Ming; Zhang, Shu-Yan; Lehmann, Eberhard; Kaestner, Anders; Chui, Shyr-Lin; Stanfield, David; Wride, Andrew</i>	
Development of Leakage Control Technology of Unclosed Constructions in Aviation	128
<i>Kazakevych, Mykhailo; Semenets, Oleksandr; Derecha, Valerij; Kazakevych, Volodimir</i>	
Smart NDT Tools: Connection and Automation for Efficient and Reliable NDT Operations	135
<i>Guibert, Frank; Rafrafi, Mona; Rodat, Damien; Prothon, Etienne; Dominguez, Nicolas; Rolet, Sébastien</i>	
Thermosonic Testing with Phased Matched Guided Wave Excitation	145
<i>Rahammer, Markus; Solodov, Igor; Bisle, Wolfgang; Scherling, Dieter; Kreutzbruck, Marc</i>	
Radiographic Inspection - Film Replacement with Digital Detector Arrays in Aerospace Applications	154
<i>Schulte, Frank; Bavendiek, Klaus</i>	
Non-Destructive Damage Detection and Material Characterization of Turbine Components Using Megahertz Range Induction Thermography in Pulsed Mode	157
<i>Frackowiak, Wojciech; Bruchwald, Oliver; Zwoch, Stefan; Reimche, Wilfried; Maier, Hans Jürgen</i>	
NDT Diagnosis Automation: a Key to Efficient Production in the Aeronautic Industry	163
<i>Barut, Silvére; Dominguez, Nicolas</i>	
Non-Destructive Testing of CFRP in the Design Process - A Generic Approach to Describe and Optimize Non-Destructive Testing	171
<i>Mosch, Michael; Oster, Reinhold; Große, Christian U.</i>	
High Resolution Crack Detection on Turbine Blade Roots by the Use of Eddy Current and Ultrasonic Rayleigh Waves	179
<i>Rau, Ernst; Bamberg, Joachim; Burchards, Jürgen; Berwig, Pius; Voelkl, Werner</i>	
New Highly Productive Phased Array Ultrasonic Testing Machine for Aluminium Plates for Aircraft Applications	187
<i>Henkel, Christoph; Sperl, Markus; De Odorico, Walter</i>	
High Contrast Radioscopy System for X-Ray High Energy Control	195
<i>Tosti, Elena</i>	
Laminographic Inspection of Large Carbon Fibre Composite Aircraft-Structures at Airbus	204
<i>Bullinger, Oliver; Schnars, Ulf; Schulting, Daniel; Redmer, Bernhard; Tschakner, Martin; Ewert, Uwe</i>	

Recurrence Quantification Analysis for Non-Destructive Evaluation with an Application in Aeronautic Industry	214
<i>Brandt, C.; Maaß, P.</i>	
Development and Application of On-line Ultrasonic Inspection Transducers to Be Applied Into Composite Full Scale Structural Tests	222
<i>Miguel Geraldo, Carlos; Montero de Espinosa, Francisco</i>	
Non-destructive Identification of the Interlayer Bond Between Concrete Substrate and an Added Repair Layer with Variable Thickness Using Ann	229
<i>Czarnecki, Slawomir; Hola, Jerzy; Sadowski, Lukasz</i>	
Development of Phased Array Ultrasonic Testing Application for Detection and Sizing of Orthotropic Steel Deck Fatigue Cracks	237
<i>Yagi, Naoto; Ikeue, Katsunori; Makita, Tohru; Furuta, Daisuke</i>	
Study on the Long Distance Non-Contact Acoustic Inspection Method using a Strong Ultrasonic Sound Source	245
<i>Sugimoto, Tsuneyoshi; Sugimoto, Kazuko; Utagawa, Noriyuki; Katakura, Kageyoshi</i>	
Advances in Ultrasonic Testing - Research Into the Application of Dry Point Contact Transducers	253
<i>Corbett, David</i>	
Rock Bolt Inspection by Means of RBT Instrument	260
<i>Stepinski, Tadeusz; Matsson, Karl-Johan</i>	
Rapid and Comprehensive Detection and Characterization Using a Fully Autonomous Robotic NDE Platform RABIT	267
<i>Gucunski, Nenad; Basily, Basily; Kim, Jinyoung; Dinh, Kien; Duong, Trung; Kee, Seong-Hoon; Maher, Ali</i>	
Application Limits of NDT Methods for Reinforced and Prestressed Concrete Members in Practice	275
<i>Sodeikat, Christian</i>	
Development of an Efficient Air-Coupled Impact-Echo Scanner for Concrete Pavements	283
<i>Groschup, Robin; Große, Christian U.</i>	
Optimal Mix Design of Glass Reinforced Cementitious Specimens Based on Innovative Ultrasonic Wave Features	291
<i>Iliopoulos, Sokratis; Aggelis, Dimitrios G.</i>	
Efficiency of Self-healing Agents for Cementitious Materials Characterized by NDT	298
<i>Malm, Fabian; Große, Christian U.</i>	
Establish a Process to Detecting the Damage Depth of Concrete Structures after Exposure to High Temperatures by the Impact Echo Method	306
<i>Yang, HsuanChih; Lin, Yi-Ching</i>	
Research on Radiographic Testing of Steel Wire Ropes in Suspension Bridges	314
<i>Peng, Peng Chi; Wang, Chung Yue</i>	
NDT in Building - Examination of a Mounting Plate Made of Concrete and the Subsoil as Part of a Failed Lifting Operation	319
<i>Hasenstab, Andreas; Schaar, Reinhold</i>	
Influence of the Water and Aggregate-to-Cement Ratio on the AE Activity of Fresh Concrete	327
<i>Iliopoulos, Sokratis; El Khattabi, Yassir; Aggelis, Dimitrios G.</i>	
Acoustic Emission Monitoring of Reinforcing Bars Pull-out from Concrete Matrix	335
<i>Nguyen, Phuoc Luong; Vantomme, John; Aggelis, Dimitrios G.</i>	
Bridge Testing and Monitoring of Steel Components with Acoustic Emission	343
<i>Löhr, Manuel</i>	
Monitoring of the Structural Behaviour of Hybrid Concrete Beams by Means of Acoustic Emission and Digital Image Correlation	344
<i>Aggelis, Dimitrios G.; Verbruggen, Svetlana; De Sutter, Sven; Iliopoulos, Sokratis; Tysmans, Tine</i>	
Non-Destructive Assessment of Fiber Alignment in CFRP using Eddy Current Testing with Differential Type Probe	352
<i>Kosukegawa, Hiroyuki; Yoshikawa, Yuki; Urayama, Ryoichi; Uchimoto, Tetsuya; Takagi, Toshiyuki</i>	
Design and Manufacture of Reference and Natural Defect Artefacts for the Evaluation of NDE Techniques for Fibre Reinforced Plastic (FRP) Composites in Energy Applications	360
<i>Gower, Michael; Lodeiro, Maria; Aktas, Alper; Shaw, Richard; Maierhofer, Christiane; Krankenhagen, Rainer; Augustin, Sven; Röllig, Mathias; Knazovická, Lenka; Blahut, Ales; Monte, Christian; Judaschke, Rolf; Ségur, Damien</i>	
New Approaches to Air-coupled Ultrasound Testing of Composite Lightweight Materials	370
<i>Steinhausen, Ralf; Kiel, Mario; Pientschke, Christoph; Münch, Hans-Joachim; Mück, Andreas; Hahn, Katrin</i>	
Online-Thermography: An Efficient Tool for Optimization of Laser Ablation and Repair of CFRP Structures	379
<i>Menner, Philipp; Hess, Axel; Grill, Stefan; Zahedi, Ehsan</i>	
Ultrasonic IR Thermography Detection of Defects in Multi-layered Aramide Composites	388
<i>Swiderski, Waldemar; Pracht, Monika</i>	
Experimental Investigation of Impact Damaging of Carbon Fibre Reinforced Composites	395
<i>Meola, Carosena; Boccardi, Simone; Carlomagno, Giovanni Maria; Boffa, Natalino Daniele; Monaco, Ernesto; Ricci, Fabrizio</i>	
Characterisation of Artificial and Natural Defects in Fibre Reinforced Plastics Designed for Energy Applications Using Active Thermography	403
<i>Maierhofer, Christiane; Krankenhagen, Rainer; Röllig, Mathias; Riemer, Stefanie; Gower, Michael; Baker, Graham; Lodeiro, Maria; Knazovická, Lenka; Blahut, Ales; Monte, Christian; Adibekyan, Albert; Gutschwager, Berndt</i>	
New Approaches in Nondestructive Characterisation of the Interface in Metal - CFRP Hybrid Structures	412
<i>Herrmann, Hans-Georg; Schwarz, Michael; Summa, Jannik</i>	
Non-Destructive Testing of Plastics and Composites in the Chemical Processing Industry	420
<i>Jacobson, Karin; Carlson, Johan; Lindblad, Philip</i>	

Definition of Requirements for Reference Experiments to Determine and Evaluate Various Damage Mechanisms in Fibre Composites by Acoustic Emission	431
<i>Hönig, Ulrike; Holder, Ulrich; Pietzsch, Alexander; Schulze, Eberhard; Frankenstein, Bernd; Schubert, Lars</i>	
Volumetric Digital Image Correlation for Materials Characterization	439
<i>Quintana, Enrico; Reu, Phillip; Jimenez, Edward; Thompson, Kyle; Kramer, Sharlotte</i>	
X-Ray Computed Tomography of Structural Parts Made by Injection Moulding and a Local Reinforcement with Thermoplastic UD-sheets	449
<i>Geyer, Anne; Wagner, Thomas; Krumm, Michael; Hämmerle, Volker; Schlimper, Ralf; Sauerwein, Christoph</i>	
3D Crack Analysis in Hydrogen Charged Lean Duplex Stainless Steel with Synchrotron Refraction CT	460
<i>Laquai, René; Schaupp, Thomas; Müller, Bernd R.; Griesche, Axel; Kupsch, Andreas; Lange, Axel; Kannengießer, Thomas; Bruno, Giovanni</i>	
CT Reconstruction on Unstructured Mesh for Multi-material Object	469
<i>Nagai, Yukie; Ohtake, Yutaka; Suzuki, Hiromasa</i>	
The Development of the First On-Line Industrial CT Detection System of China	478
<i>Hu, Dongcai; Chen, Hao; Chen, Yunbin; Tu, Guofeng; Wang, Tengfang</i>	
Advanced Computed Laminography Using a Priori Information	483
<i>Schorr, C.; Dörr, L.; Maisl, M.</i>	
Potentials of Full-Vehicle CT Scans Within the Automotive Industry	492
<i>Ciliberti, Gina Alessandra; Janello, Philipp; Jahnke, Peter; Keuthage, Lennart</i>	
Fully Automatic Optical Surface Determination in Computed Tomography	498
<i>Kratz, Bärbel; Herold, Frank</i>	
The Applications of Industrial CT NDT Technology in Geological Research	506
<i>Xiao, YongShun; Chen, Zhiqiang; Yu, DaiWei; Li, Yantao; Ye, Liang</i>	
Methodology for the Evaluation of CT Image Quality in Dimensional Metrology	513
<i>Krämer, Alexandra; Lanza, Gisela</i>	
Sonic and Ultrasonic Measurement Applications for Cased Oil Wells	520
<i>Zeroug, Smaine; Bose, Sandip; Sinha, Bikash; Skataric, Maja; Liu, Yang; D'Angelo, Ralph</i>	
In-service Detection of Longitudinal Cracks on Drill Pipe using Induced Circumferential Current	532
<i>Yuan, Xin'an; Li, Wei; Yin, Xiaokang; Chen, Guoming; Ge, Jiuhao</i>	
Evaluation of Bolt Loosening Using A Hybrid Approach Based on Contact Acoustic Nonlinearity	541
<i>Zhang, Zhen; Su, Zhongqing; Xiao, Yi; Liu, Menglong</i>	
Measurement of Acoustic Emission Source Location Accuracy loss of Concrete Under Bending	550
<i>Tsangouri, Eleni; Karaiskos, Grigorios; Aggelis, Dimitrios G.; Deraemaeker, Arnaud; Van Hemelrijck, Danny</i>	
Requalification of LPG Tanks in Europe: Verifying the Structural Integrity by Monitoring the Pressure Test with Acoustic Emission	558
<i>Lackner, Gerald; Tscheliesnig, Peter</i>	
Rotating Machine Diagnosis using Smart Feature Selection under Non-Stationary Operating Conditions	566
<i>Heyns, P. Stephan; Vinson, Robert; Heyns, Theo</i>	
Non-destructive Evaluation of Stress Corrosion Cracking under Micro Cell by Acoustic Emission and Video Microscope	576
<i>Shiwa, Mitsuharu; Masuda, Hiroyuki; Yamawaki, Hisashi; Ito, Kaita; Enoki, Manabu</i>	
Comparison Corrosion Mapping Solutions using Phased Array, Conventional UT and 3D scanners	584
<i>Turcotte, Jonathan; Rioux, Philippe; Lavoie, Jérôme-Alexandre</i>	
Corrosion Detection Under Pipe Supports Using EMAT Medium Range Guided Waves	594
<i>Garcia, Victor; Boyero, Carlos; Jimenez Garrido, Jesus Antonio</i>	
High-Resolution Corrosion Monitoring for Reliable Assessment of Infrastructure	603
<i>Lamarre, André</i>	
Pulsed Eddy Current: New Developments for Corrosion Under Insulation Examinations	610
<i>Grenier, Marc; Demers-Carpentier, Vincent; Rochette, Maxime; Hardy, Florian</i>	
Corrosion Detection and Measurement Improvement Using Advanced Ultrasonic Tools	620
<i>Le Ber, Laurent; Benoist, Gregoire; Dainelli, Pascal</i>	
Corrosion Detection by Means of Acoustic Emission (AE) Monitoring	628
<i>Tscheliesnig, Peter; Lackner, Gerald; Jagenbrein, Andreas</i>	
Measurement of Residual Thickness in Case of Corrosion Close to the Welds with an Adaptive Total Focusing Method	636
<i>Roy, Olivier; Benoist, Philippe; Bergalonne, Patrick; Chevallier, Célia</i>	
A New Method to Test Masonry Shear Characteristics Thought Flat Jack (FJ-SCT Method)	644
<i>Foppoli, Dario; Pulcini, Anselmo</i>	
Characterisation of Historic Facades using Active Thermography with Solar Heating and Optical Methods	653
<i>Maierhofer, Christiane; Röllig, Mathias; Steinfurth, Henrik; Augustin, Sven; Mecke, Rüdiger; Schiller, Michael; Kernchen, Alexa; Kalisch, Uwe; Meinhardt, Jeannine; Hennen, Christiane; Groll, Ernst Thomas; Arnold, Torsten</i>	
Moisture Monitoring During an Artificial Weathering Test of a Cultural Heritage Compatible Insulation Plaster	661
<i>Frick, Jürgen; Reichert, Manuela; Lehmann, Frank; Stegmaier, Michael; Herter, Katja</i>	
Development of a Standard for Computed Tomography of Historical Musical Instruments – The MUSICES Project	668
<i>Fuchs, Theobald; Wagner, Rebecca; Kretzer, Christian; Schielein, Richard; Scholz, Gabriele; Zepf, Markus; Bär, Frank; Kirsch, Sebastian; Wolters-Rosbach, Meike</i>	
THz Pulsed Time Domain Imaging Applied to Museum Objects and its Comparison with Other Frequency Regions	676
<i>Fukunaga, Kaori; Kohdzuma, Yohsei</i>	

Fatigue Crack Detection on Unique Church Bells by Modal Analysis	684
<i>Rupp, A.; Plitzner, M.</i>	
An XXL-CT-Scan of an XXL Tyrannosaurus Rex Skull	692
<i>Reims, N.; Böhnel, M.; Larson, P.; Schulp, A.</i>	
Development and Applications of High Energy Industrial Computed Tomography In China	701
<i>Xiao, YongShun; Chen, Zhiqiang; Li, Yantao; Ye, Liang</i>	
Non-Destructive Evaluation Utilizing Imaging Plates for Field Radiography Applications	709
<i>White, Brian S.</i>	
Photon Counting and Energy Discriminating X-Ray Detectors - Benefits and Applications	716
<i>Walter, David; Zscherpel, Uwe; Ewert, Uwe</i>	
Practical Considerations and Effects of Metallic Screen Fluorescence and Backscatter Control in Gamma Computed Radiography	726
<i>Mango, Steven</i>	
Influence of Scattered Radiation on the Efficiency of Dual-High Energy X-Ray Imaging for Material Characterization	734
<i>Kolkoori, Sanjeevareddy; Jaenisch, Gerd-Rüdiger; Deresch, Andreas</i>	
Numerically Enhanced Eddy Current Inspection of Corrosion Losses of Aircraft Structures	744
<i>Szlagowska-Spychalska, Justyna; Dragan, Krzysztof; Dziendzikowski, Michal</i>	
Thickness Detection of Corroded Steel Plate by Low Frequency Eddy Current Testing	752
<i>Haga, Yuta; Goda, Tsuyoshi; Sakai, Kenji; Kiwa, Toshihiko; Tsukada, Keiji</i>	
Application of SLOFEC® and Laser Technology for Testing of Buried Pipes	760
<i>Scheer, Gerhard</i>	
Detection and Imaging of Internal Cracks by Tangential Magnetic Field Component Analysis using Low-Frequency Eddy Current Testing	769
<i>Yasugi, Takuya; Majima, Yatsuse; Sakai, Kenji; Kiwa, Toshihiko; Tsukada, Keiji</i>	
NDT of Gas Storage Sphere Legs Through 2” of Fireproofing	777
<i>Vajpayee, Ankit; Russell, David; Yu, Yuwu</i>	
Surface and Subsurface Material Characterisation using Eddy Current Arrays	787
<i>Mook, Gerhard; Simonin, Yury</i>	
Application of Eddy Current Array Technology from the Point of View of a Service Provider	795
<i>Heutling, Bernd; Uebrig, Hans-Joachim; Awerbuch, Maksym; Sievert, Werner; Köllner, Eckard; Köllner, Stefan</i>	
Eddy Current Probes Based on Magnetoresistive Array Sensors as Receivers	809
<i>Sergeeva-Chollet, Natalia; Pelkner, Mathias; Erthner, Thomas; Kreuzbruck, Marc; Fermon, Claude; Decitre, Jean-Marc; Paul, Johannes; Cardoso, Filipe; Cardoso, Susana; Freitas, Paolo; Caetano, Diogo M.; Fernandes, Jorge; Piedade, Moises</i>	
Advances in Carbon Steel Weld Inspection using Tangential Eddy Current Array	816
<i>Raude, Angélique; Sirois, Michael; Lemieux, Hugo; Crépeau, Joël</i>	

VOLUME 2

A Phased Array Ultrasonic Testing of a Manual Thick Austenitic Weld – Feedback	832
<i>Flotté, Didier; Bittendiebel, Sylvie</i>	
Robot-based In-Process Examination of ITER Dome and First-Wall Panels based on Novel Ultrasonic Tomography Approach	841
<i>Bulavinov, Andrey; Pinchuk, Roman; Gurieva, Tamara; Lyanzberg, Dmitry; Lider, Andrey; Demyanuk, Dmitry; Sednev, Dmitry; Zhvyrblyba, Vadim; Filippov, German</i>	
Ultrasonic Testing of ITER Toroidal Field Coil Cases Closure Welds	849
<i>Resa López, Pablo Ismael; Pérez Melguizo, Carmen; Fernández Muñoz, Francisco J.; Martínez-Oña López, Rafael; Bolla, Marco; Barbero, Paolo; Bellesia, Boris; Kleiner, Davide; Bonito-Oliva, Alessandro</i>	
Study of Ultrasonic Propagation Through Vortices for Acoustic Monitoring of High-Temperature and Turbulent Fluid	858
<i>Massacret, Nicolas; Moysan, Joseph; Ploix, Marie-Aude; Jeannot, Jean-Philippe; Chaouch, Naïm</i>	
Using High-Frequency-Impulse-Measurement (HFIM) for Detection of Lubrication Driven WEC-Formation	869
<i>Barteldes, Sören; Holweger, Walter</i>	
Radar-based Structural Health Monitoring of Wind Turbine Blades	877
<i>Moll, Jochen; Krozer, Viktor; Arnold, Philip; Dürr, Manfred; Zimmermann, Ralph; Salman, Rahmi; Hübsch, Daniel; Pozdniakov, Dimitry; Friedmann, Herbert; Nuber, Andreas; Scholz, Markus; Kraemer, Peter</i>	
NDT-based Assessment of Shrinkages and Dross in Heavy Nodular Cast Iron Components of Wind Energy Turbines	885
<i>Kurz, Jochen H.; Manavipour, Maryam; Kopp, Melanie; Bruche, Dietmar; Pudovikov, Sergey; Tschuncky, Ralf; Szielasko, Klaus</i>	
Thermographic Rotor Blade Inspection from Larger Distances – A Promising Tool for the Maintenance of Wind Turbines	895
<i>Krankenhagen, Rainer; Röllig, Mathias; Worzewski, Tamara; Doroshnasir, Manoucher</i>	
Characterization and Optimization of Ultrasonic Tests for Inspection of Fiber-Reinforced Plastic Composites in Energy Related Applications	903
<i>Hosseini, Seyed M. H.; Ségur, Damien; Boehm, Rainer; Gohlke, Dirk; Heckel, Thomas; Riemer, Stefanie; Brackrock, Daniel; Gaal, Mate</i>	
UT TOFD Characterization of Steam Generator Divider Plates – Dealing with Unfavorable Component Configurations – Engineering and ISI Feedback	911
<i>Forestier, Yann; Depperrest, Marc; Paillarés, Christophe</i>	

Higher Harmonic Imaging of Crack Surfaces of SCC in Dissimilar Metal Weld with Ni-based Alloy and Fatigue Crack in Cast Stainless Steel	920
<i>Ishida, Hitoshi; Kawashima, Koichiro</i>	
Pulsed Eddy Current Technology for Steam Generator Tube Support Structure Inspection	927
<i>Mokros, Sarah; Buck, Jeremy; Underhill, P. Ross; Morelli, Jordan; Krause, Thomas W.</i>	
A New Nondestructive Testing Method for the Blade Roots of In-service Steam Turbines Based on Ultrasonic Distortion Wave	935
<i>Zhu, Lichun; Ding, Qi; Zhang, Jiong</i>	
Assessment of Microstructural Changes in Grade 91 Power Station Steel through Magnetic Measurements	943
<i>Wilson, John; Vaidhianathasamy, Moorthy; Liu, Jun; Davis, Claire; Peyton, Anthony</i>	
Ultrasonic Inspection of Nickel Alloys and Nickel Alloy Welds for High-temperature Applications in Modern Coal-fired Power Plants	951
<i>Wagner, Sabine; Dugan, Sandra</i>	
Evolution of the Ultrasonic Inspection over the Past Decades on the Example of Heavy Rotor Forgings	960
<i>Vrana, Johannes; Zimmer, Alexander; Lohmann, Hans-Peter; Heinrich, Werner</i>	
Selection Matrix for Non-destructive Testing of NPP Concrete Structures	971
<i>Al-Neshawy, Fahim; Sistonen, Eskoo; Ferreira, Miguel; Bohner, Edgar; Puttonen, Jari</i>	
Development of a Robotic Nozzle Inspection with a Flexible Transducer Array	980
<i>Dobigny, Blandine; Wattiau, Olivier; Bey, Sébastien; Vanhoye, Arnaud; Ancrenaz, Patrick; Dumas, Philippe; Fournier, Laurent</i>	
Inspection of Inaccessible Areas: The Heysham Case	989
<i>Bolander, Martin</i>	
Fatigue Damage Evaluation of Casting Austenitic Stainless Steel Based on EBSD Method	998
<i>Zhu, Xiaolei; Zou, Longjiang; Lin, Li; Luo, Zhongbing</i>	
Nondestructive Characterization Techniques for Assuring the Integrity of Fuel Pins for Fast Reactors	1005
<i>Panakkal, Jose</i>	
Model of Eddy Current Based Pressure Tube to Calandria Tube Gap Measurement	1012
<i>Luloff, Mark; Morelli, Jordan; Krause, Thomas W.</i>	
Using AE Technique to Monitor the Fracture Behavior in Shaking Table Tests of a Scale-down Mockup of Nuclear RC Structure	1019
<i>Pei, Kuang-Chih</i>	
Guided Wave Testing for Structural Component by Multipoint Sensing with Wireless Accelerometers	1027
<i>Nakahata, Kazuyuki; Takamoto, Tatsunao; Saitoh, Naka</i>	
Pulse-Echo Guided Wave Inspection Using Multimode Dispersion Compensation	1034
<i>Roberts, Ronald</i>	
Sizing of Through-Thickness Circular Holes in Plate Structures by Ultrasonic Lamb Wave Testing	1042
<i>Honarvar, Farhang; Sedaghati, Adel; Sinclair, Anthony</i>	
A New Generation of Frequency Steerable Transducers for Lamb Waves Inspections	1051
<i>De Marchi, Luca; Testoni, Nicola; Marzani, Alessandro</i>	
Non-Destructive Method Based on Rayleigh-Like Waves to Detect Corrosion Thinning on Non-Accessible Areas	1059
<i>Taupin, Laura; Jenson, Frédéric; Murgier, Sylvain; Lhuillier, Pierre-Emile</i>	
An Analytical Insight into Contact Acoustic Nonlinearity of Guided Ultrasonic Waves induced by A “Breathing” Crack	1068
<i>Wang, Kai; Su, Zhongqing</i>	
Methods for Quantitative Wall Thickness Mapping using Dispersive Guided Waves	1077
<i>Volker, Arno; van Zon, Tim</i>	
A Signal Enhancement Method for Magnetostrictive Guided Wave Testing of Pipeline Based on Mechanical Attachments	1084
<i>Cong, Ming; Wu, Xinjun; Shen, Gongtian</i>	
Guided Wave Testing (GWT) of High Temperature Piping	1092
<i>Fong, Jimmy; Evans, Mark</i>	
State of the Art on Magnetic Properties – Stress Correlation in Steels	1099
<i>Hristoforou, Evangelos; Ktena, Aphrodite; Vourna, Polyxeni; Mangiorou, Eleni; Aggelopoulos, Spyridon; Švec, Peter; Hervochoes, Charles</i>	
Analysis and Stress Determination in Welded Samples	1109
<i>Hristoforou, Evangelos; Ktena, Aphrodite; Vourna, Polyxeni; Mangiorou, Eleni; Aggelopoulos, Spyridon; Švec, Peter; Hervochoes, Charles</i>	
Universality of the Calibration Curves - The Universality Law	1116
<i>Hristoforou, Evangelos; Ktena, Aphrodite; Vourna, Polyxeni; Mangiorou, Eleni; Aggelopoulos, Spyridon; Švec, Peter; Hervochoes, Charles</i>	
Monitoring Magnetic Property Tensor Across the Weld at the Same Points where Stress Tensor was Monitored	1123
<i>Hristoforou, Evangelos; Ktena, Aphrodite; Vourna, Polyxeni; Mangiorou, Eleni; Aggelopoulos, Spyridon; Švec, Peter; Hervochoes, Charles</i>	
Space Terahertz Instrumentation for Integrity Inspection of Non-Conducting Composites	1131
<i>Belitskaya, Alena; Baryshev, Andrey; Khudchenko, Andrey</i>	
Universal Single Sensor for Machinery Condition Monitoring: Vibration, Bearing Health and Temperature	1137
<i>Zusman, George</i>	
Damage Reconstruction in Complex Composite Structures using Lamb Waves	1142
<i>Raddatz, Florian; Wierach, Peter; Sinapius, Michael</i>	
An Order Spectrum Based Method to Ensure Consistent Monitoring Through Vold-kalman Filter Order Tracking	1151
<i>Wang, KeSheng; Feng, Ke; Zuo, Ming J</i>	

Advanced Acoustic Detection System Monitoring Nuclear Power Plant Components	1160
<i>Por, Gabor</i>	
Digital Image Processing for the Automation of NDT by Means of Endoscopy	1168
<i>Spinnler, Klaus; Bergen, Tobias; Sandvoss, Jan; Wittenberg, Thomas</i>	
Automatic Industrial CT Image Processing and Analysis of Batch Workpiece NDT Based on the VGStudio SDK	1176
<i>Xiao, YongShun; Wang, Tingting; Zeng, XiangZhao</i>	
Ultrasonic Phased Array Three-Dimensional Imaging Using TFM-based Slice.....	1184
<i>Sun, Changli; Gang, Tie; Yu, Peng</i>	
Multi-Modes Electromagnetic Ultrasonic Lamb Wave Tomography Imaging for Variable-depth Defects in Metal Plate.....	1192
<i>Huang, Songling; Zhang, Yu; Wang, Shen; Zhao, Wei</i>	
A Feasibility Study of the Guided Wave Tomography for Spot Weld Inspection	1200
<i>Kitazawa, So; Asami, Kenichi; Tayama, Kenji; Kikuchi, Osamu; Hanawa, Haruyuki</i>	
Electronic Reference Images for Flaw Indications in Welds and Castings	1206
<i>Zscherpel, Uwe; Ewert, Uwe</i>	
Imaging Multilayered Objects with Complex Geometry	1214
<i>Lukomski, Tomasz; Stepinski, Tadeusz</i>	
Optimization of the Inspection Duration for SAFT.....	1225
<i>Mooshofer, Hubert; Vrana, Johannes</i>	
Three Dimensional Characterization of Defects by Ultrasonic Time-Of-Flight Diffraction (TOFD) Technique	1236
<i>Honarvar, Farhang; Habibpour-Ledari, Ali</i>	
Requirements For a Small Size Ultrasonic Imaging System for Inspection of Concrete Elements	1245
<i>Mayer, Klaus; Ibrahim, Mohamad; Krause, Martin; Schubert, Marcus</i>	
A Transmission-tomographic Imaging Setup Combining Elastic and Electromagnetic Wave Functionality.....	1254
<i>Schickert, Martin; Bonitz, Frank</i>	
Laser Speckle Photometry (LSP) - Optical Sensor System for Monitoring of Material Condition and Processing.....	1262
<i>Cikalova, Ulana; Bendjus, Beatrice; Sudip, Shohag Roy; Chen, Lili</i>	
Shearography as Non-Destructive Testing Method in the Application of Adhesive Tapes	1269
<i>Kryukov, Igor; Böhm, Stefan; Schach, Matthias</i>	
Smaller Than the Eye Can See: Vibration Analysis with Video Cameras.....	1277
<i>Buyukozturk, Oral; Chen, Justin G.; Wadhwa, Neal; Davis, Abe; Durand, Fredo; Freeman, William T.</i>	
Non-destructive Testing of Green Sanitary Ceramics by Microwaves and an Active Thermographic Technique	1287
<i>Walle, Günter; Sklarczyk, Christoph; Netzelmann, Udo</i>	
UV Testing Personnel Training and Certification.....	1297
<i>Batov, Georgy</i>	
A Robot Inspection System Allows the Detection of Defects in Adhesive Bonds Between CFRP Components by Using Active Thermography, Leading to Reduces Cycle Times	1302
<i>Busch, Matthias; Faupel, Benedikt</i>	
The Study on Thermal Characteristics According to the Liquid Present Inside the Micro- Cracks of the Metal Specimen by Using the Ultrasound Infrared Thermography.....	1309
<i>Choi, ManYong; Park, HeeSang; Park, JeongHak; Kwon, KooAhn; Choi, WonJae; Kim, WonTae</i>	
Using the Correlation of Speckle Images to Monitor the Process of Crack Origination and Propagation under High-cycle Fatigue	1315
<i>Gorkunov, Eduard; Vladimirov, Alexander; Gladkovsky, Sergey; Zadvorkin, Sergey</i>	
Structured Parameter Sets for Thermographic Inspection of CFRP Metal Hybrid Components	1323
<i>Jelinek, Michael; Glasschröder, Johannes; Reinhart, Gunther</i>	
Learning More on Thermoplastic Composites with Infrared Thermography	1332
<i>Meola, Carosena; Boccardi, Simone; Carlomagno, Giovanni Maria; Simeoli, Giorgio; Russo, Pietro</i>	
Application of Object Recognition in Locomotive Components Monitoring	1340
<i>Xie, Liming; Yang, Kai; Peng, Jianping; Gao, Xiaorong; Tan, You</i>	
Active Thermographic Testing of CFRP with Ultrasonic and Flash Light Activation	1348
<i>Pohl, Jürgen</i>	
Automated Non-destructive Testing of Hybrid Structures.....	1358
<i>Dröder, Klaus; Dietrich, Franz; Fricke, Andreas; Gerhard, Camilo; Schäfer, Matthias</i>	
Measuring Strand Orientation in Carbon Fiber Reinforced Plastics (CFRP) with Polarization	1362
<i>Schöberl, Michael; Kasnakli, Koray; Nowak, Arne</i>	
Time is Money and Image is Everything – The Changing Face of the RVI Market.....	1370
<i>Williams, Tristan; Hammerl, Klaus</i>	
Detection of Casting Defects in Aluminum Slabs by Laser Ultrasonic Measurements	1380
<i>Roither, Jürgen; Mitter, Thomas; Reitingner, Bernhard; Wiesinger, Alois; Hofer, Christian; Grün, Hubert; Burgholzer, Peter</i>	
Laser Ultrasonic Characterisation of Rolled Steel Strip: Wave Propagation in Inhomogeneous Thin Sheets	1387
<i>Krix, David; Schmidt, René; Mota, Mariana; Volker, Arno</i>	
Robot-based Solutions for NDT Inspections: Integration of Laser Ultrasonics and Air Coupled Ultrasounds for Aeronautical Components	1395
<i>Cuevas Aguado, Esmeralda; Cabellos, Elena; Hernandez, Sergio</i>	
Fast Non-Contact Defect Imaging with Scanning Laser Source Technique.....	1404
<i>Hayashi, Takahiro; Fukuyama, Misaki; Ishihara, Ken</i>	
Flexible Ultrasonic Transducer for Laser Ultrasound Imaging of Defects in Curved Structures	1412
<i>Wu, Tai-Chieh; Kobayashi, Makiko; Cheng, Chin-Chi; Yang, Che-Hua</i>	

A New Concept for the Non-Destructive Testing of Fiber-Reinforced Plastics via Laser Generated Ultrasonic Guided Waves	1420
<i>Kelkel, Benjamin; Sebastian, Ron; Gurka, Martin; Traub, Tobias; L'huillier, Johannes; Poltawski, Jurij; Günster, Sven</i>	
Fast Inversion Calculation for Full-field Measurement of Material Properties with Quantitative Laser Ultrasound Visualization System	1432
<i>Tseng, Sheng-Po; Wu, Chia-Han; Yang, Che-Hua</i>	
Evaluation of Friction Stir Welding Process by Laser Ultrasonic Method with Synthetic Aperture Focusing Technique	1440
<i>Zhou, Zhenggan; Zhang, Kuanshuang</i>	
Quantification of Internal Air Leakage in Ball Valve Using Acoustic Emission Signals	1447
<i>Xu, Changhang; Han, Guoxing; Gong, Piao; Zhang, Lizhen; Chen, Guoming</i>	
Leak Test of Encapsulated Systems with the Test Medium Compressed Air	1456
<i>Lapsien, Joachim</i>	
Advantages of Carrier Gas Leak Detection using Novel Helium or Hydrogen Leak Detectors with Specific Sensor Types	1463
<i>Herrmann, Klaus; Wetzig, Daniel</i>	
Acoustic Methods for Leak Detection and Tightness Testing	1475
<i>Holstein, Peter; Barth, Manuela; Probst, Christian</i>	
Examination of Service Life of Generator Rotor Retaining Rings Made of ASTM A289 Class C Steel Using LDC1000 Sensor	1481
<i>Zurek, Zbigniew Hilary; Dobmann, Gerd; Baron, Dariusz</i>	
Efficient Inspection from Measurement Collection Through to Report	1493
<i>Woodhead, Wayne; Pearson, Neil; Marshall, Steven; Boat, Matthew</i>	
Ultrasonic Inspection of Fatigue Stressed Areas of Hydroelectric Power Plant Components	1505
<i>Dugan, Sandra; Berner, Stefan; Kropp, Julia; Müller, Ralf; Hoffmann, Jean-Pierre</i>	
Ultrasonic Waveguide Techniques for Distributed Temperature Sensing	1512
<i>Periyannan, Suresh; Rajagopal, Prabhu; Balasubramanian, Krishnan</i>	
Technological Status of LED Techniques - Application in Non Destructive Testing with Special Emphasis on Magnetic Particle, Penetrant, Visual and Thermographic Inspection	1520
<i>Link, Rainer; Ivankov, Andrej; Riess, Nathanael</i>	
Micro-emulsion Technologies for the Cost Optimization of your Fluorescent Penetrant Inspection Processes	1531
<i>Berg, Hans Wolfgang; Verdier, Louis; Pielmeier, Johann; Woerner, Joerg</i>	
Applications of a New NDT Technique Based on Bacterial Cells	1536
<i>Santos, Telmo G.; Inácio, Patrick L.; Costa, Alexandre A.; Miranda, R. M.; C. C. R. de Carvalho, Carla</i>	
New Developed AC/DC-Pulse Technology for MT-Testing and Demagnetization of Steel Components	1543
<i>Hirsch, Peter</i>	
Australian Innovations in Structural Health Monitoring for Aeronautical and Maritime Applications	1551
<i>Scala, Christine M.</i>	
Practical System for Monitoring Current Stress and Accumulated Fatigue of Vessel Hull using Nondestructive Method, by Measuring Magnetic Properties of the Metal, the Coercive Force	1559
<i>Bezlyudko, Gennadiy; Zavalniuk, Olga; Nesterenko, Vladimir; Solomakha, Roman</i>	
Surface, Near-Surface and Volume Inspection of Cast Components Using Complementary NDT Approaches	1561
<i>Spies, Martin; Rieder, Hans; Rauhut, Markus; Kreier, Peter</i>	
Magnetic Characterization of Wear Due to Fatigue and Inspection of Flaws in Small Diameter Wire Ropes	1569
<i>Martinez-de-Guerenu, Ane; Zambrano, María Ximena; Arizti, Fernando</i>	
Detecting and Quantifying High Temperature Hydrogen Attack (HTHA)	1577
<i>Trimborn, Norbert</i>	
Examination of Service Life of Power System Components Made of P91 Steel (X10CrMoVNb9-1) Using Impedance Spectroscopy and Magnetic Resonance Technique	1581
<i>Zurek, Zbigniew Hilary; Dobmann, Gerd; Rockstroh, Bernd; Kukla, Dominik</i>	
Evaluation of the Fatigue State of Equipment from Austenitic Stainless Steels According to the Degree of Acquired Ferromagnetism and Accumulated Microdamages by Nondestructive Method to Measure the Magnetic Characteristic, the Coercive Force	1590
<i>Bezlyudko, Gennadiy; Nehotyaschy, Vladimir; Palienko, Alexander; Solomakha, Roman; Gopkalo, Alexey</i>	
Fatigue Detection of Steel Plate Using Magnetic Flux Leakage Method	1593
<i>Sakai, Kenji; Kiwa, Toshihiko; Tsukada, Keiji</i>	
Coercivity of Metal as a Measure of its Damage at Micro Level in Assessing Fatigue, as well as in Problems of Restoration of Mechanical Properties	1600
<i>Vakulenko, Karina; Kozak, Irina; Bezlyudko, Gennadiy; Solomakha, Roman</i>	
Combination of Ultrasonic and Eddy Current Testing with Imaging for Characterization of Rolling Contact Fatigue	1603
<i>Sczugs, Thorsten; Krüger, Alexander; Jansen, Gert; Beltman, Bas; Gao, Shulin; Mühlmeier, Heike; Ahlbrink, Ralf</i>	
Tightening Control by Ultrasound	1611
<i>Belahcene, Farid; Samson, Pierre</i>	
Characterization of the States of Aging of HP Austenitic Stainless Steels Through Spectral Analysis of Ultrasonic Signals	1620
<i>Chaves de Siqueira, Natalie; Duarte de Almeida, Priscila; Mauricio Ferreira Leite Miranda de Sá, Antonio; Henrique de Almeida, Luiz; Ribeiro Pereira, Gabriela</i>	
Study of the Phase Contrast for the Characterization of the Surface of the Laser Megajoule Microshell	1627
<i>Choux, Alexandre; Dutto, Vincent; Busvelle, Eric; Gauthier, Jean Paul</i>	

Latest Improvements on Characterization for the LMJ Targets Fabrication	1636
<i>Choux, Alexandre; Hermerel, Cyril; Reverdy, Ludovic; Raphaël, Olivier; Busvelle, Eric; Jeannot, Laurent; Theobald, Marc</i>	
Effect of Initial Stress-strain States on the Magnetic Behavior of Pipe Steels Under Elastic Deformation	1644
<i>Gorkunov, Eduard; Subachev, Yuriy; Povolotskaya, Anna; Zadvorkin, Sergey</i>	
Magnetic Methods as Applied to Testing a Current State of Welded Joints	1651
<i>Gorkunov, Eduard; Putilova, Evgeniia; Zadvorkin, Sergey</i>	

VOLUME 3

Detection of Sensitization for 600 Alloy and Austenitic Stainless Steel by Magnetic Field Sensor	1659
<i>Kikuchi, Hiroaki; Yanagiwara, Hiroki; Takahashi, Hideki; Sumimoto, Takaki; Murakami, Takeshi</i>	
Development of Simultaneous Nondestructive Evaluation using Magnetic Method for Material Characterization and Micro Defect	1666
<i>Kikuchi, Hiroaki; Nakai, Shingo; Sato, Kaito; Shimizu, Isamu; Iwata, Keiji</i>	
Reference Block Design for High Resolution Ultrasound Immersion Tank Testing	1672
<i>Kotschate, Daniel; Gohlke, Dirk; Eisentraut, Mark</i>	
Quality Control of the Induction Hardened Layer and the Grinding Process in Aerospace Ball Screws Via Magnetic Barkhausen Noise Analysis	1676
<i>Gurruchaga, Kizkitza; Martinez-De-Guerenu, Ane; Lasoasa, Aitor; Arizti, Fernando</i>	
Acoustic Emission Tests on Steel Samples with Different Increasing Calibrated Planar Defects. Different Behavior of Material Due to Increasing Stress. Interpretation of the Results in the Context of String Theory.	1684
<i>Nardoni, Giuseppe; Nardoni, Pietro; Bentoglio, Mattia; Mattei, Laura</i>	
Time Efficient Nondestructive Characterization of Customized Magneto-optical Thin Layers for Industrial Use	1691
<i>Rabung, Madalina; Kopp, Melanie; Szielasko, Klaus; Sheikh Amiri, Meisan</i>	
Capabilities and Limitations of Using the Residual Magnetic Field in NDT	1692
<i>Roskosz, Maciej</i>	
Using Barkhausen Noise to Develop a Method of Hardness Measurement	1699
<i>Roskosz, Maciej; Fryczowski, Krzysztof</i>	
Calculation and Analysis the Magnetic Parameters of the Minors Hysteresis Loop for Steels from the Basic Magnetic Parameters	1706
<i>Sandomirski, Sergei</i>	
Analysis of the Structural Sensitivity of the Permeability Steels	1714
<i>Sandomirski, Sergei</i>	
Relations Among Ultrasonic Testing Results and Defect Characteristics and Material Properties of Laser Additive Manufacturing Titanium Alloy	1722
<i>Shi, Yiwei; Yang, Pinghua; Liang, Jing; Wang, Zheng</i>	
Coercimetric Technological and Acceptance Testing of Welded Joints to Ensure their Useful Life as Exemplified By Butt Welding of Rail Joints, including Subsequent Operational Diagnostics	1730
<i>Bezlyudko, Gennadiy; Solomakha, Roman; Lukina, Anastasiia</i>	
Monitoring of Low Cycle Fatigue Damage with Eddy Current	1735
<i>Pothoff, Markus; Peterseim, Juergen; Thale, Werner</i>	
Distortion Analysis of Magnetic Excitation (DAME) – A Novel NDE Method for Evaluation of Properties of Ferromagnetic Materials	1744
<i>Vaidhianathasamy, Moorthy</i>	
Influence of Chemical Compositions and Thermal Treatments on the Structure and Mechanical Properties of Zirconia Based Thermal Coatings	1752
<i>Ruch, Marta Clelia; Savin, Adriana; Steigmann, Rozina; Ifimie, Nicoleta; Malo, Sylvie; Bruma, Alina; Craus, Mihail Liviu; Fava, Javier; Novy, Frantisek; Cosarinsky, Guillermo</i>	
Structural Integrity of Coatings of Zirconia Doped with Ceria on Stainless Steels	1760
<i>Ruch, Marta Clelia; Savin, Adriana; Novy, Frantisek; Turchenko, Vitalja; Craus, Mihail Liviu; Fava, Javier</i>	
Testing of Ceramics by Ultrasound Microscopy and Vibration Analysis	1768
<i>Barth, Martin; Duckhorn, Frank; Tschöke, Kilian; Tschöpe, Constanze; Köhler, Bernd</i>	
3D-SAR-Imaging and Thickness Determination of Zirconia Based Coatings on Non-Planar Metal Substrates in the Lower Terahertz Region	1777
<i>Oppelt, Daniel; Adamecz, Julian; Schür, Jan; Vossiek, Martin</i>	
Experimental Investigation on the Thermal Conductivity and Ultrasonic velocity of Propylene Glycol based TiO₂ Nanofluids	1786
<i>Singh, Devraj; Bhalla, Vyoma; Mathur, Ashish Kumar; Wan, Meher; Dhawan, Puneet; Jaiswal, Aaashit Kumar; Yadav, Raja Ram</i>	
Terahertz Time Domain Spectroscopy for the Non-destructive Testing of Plastic Parts	1793
<i>Kremling, Stefan; Hauck, Johannes; Schober, Giovanni; Hochrein, Thomas</i>	
Innovative Technologies as Enabler for Sorting of Black Plastics	1801
<i>Niößler, Dirk; Gruna, Robin; Brandt, Christian; Küter, Andries; Längle, Thomas; Kieninger, Michael; Pohl, Nils</i>	
THz-ToF Techniques for the Detection of Inherent Discontinuities in Dielectric Materials Based on a SAFT – and an Optical Layer Reconstruction Algorithm	1809
<i>Spranger, Holger; Beckmann, Jörg; Boehm, Rainer</i>	
Evaluation of a Testpiece for Porosity in Carbon Fibre Reinforced Polymers	1819
<i>Kastner, Johann; Plank, Bernhard; Rao, Guruprasad</i>	
Fiber Waviness Detection by Electromagnetic Testing in Carbon Fiber Reinforced Plastics	1826
<i>Tsuda, Akinori; Kawai, Hiroki; Yamaguchi, Yuichi; Inagaki, Koichi; Hatanaka, Hiroaki; Tagami, Minoru</i>	

Characterization of Multiphase Metal Matrix Composites by Means of CT and Neutron Diffraction	1832
<i>Cabeza, Sandra; Mishurova, Tatiana; Bruno, Giovanni</i>	
Infinite Life of CFRP Evaluated Non-Destructively with X-Ray-Refraction Topography In-Situ Mechanical Loading	1842
<i>Trappe, Volker; Müller, Alexander; Hickmann, Stefan</i>	
Recent Advances in Handheld X-Ray Fluorescence Based Alloy PMI/Material Testing	1851
<i>Thurston, Alex</i>	
Only the Combination of Different NDT Methods of Material Characterization is the Key to Success	1859
<i>Spiess, Lothar; Teichert, Gerd; Bottcher, Rene; Kups, Thomas; Schaaf, Peter</i>	
Combined Portable Hardness Testing Solution to Increase the Efficiency of Inspection & Quality Control Processes	1865
<i>Akhlaghi, Alireza; Frehner, Christoph</i>	
Ultrasonic Assessment of Metal Microstructures, Modelling and Validation	1873
<i>Volker, Arno; De Soares Silva e Melo Mota, Mariana; Wirdelius, Håkan; Lundin, Peter; Krix, David; Kok, Piet; Martinez-de-Guerenu, Ane; Gutierrez, Isabel</i>	
Magnetic Susceptibility Imaging as a New Approach towards Characterization and Testing of Para- and Diamagnetic Materials	1881
<i>Szielasko, Klaus; Gupta, Bhaawan; Kurz, Jochen H.</i>	
A Comparison between ASTM E588 and SEP 1927 Relating Resolution Limits at Determination of the Purity Grade	1888
<i>Kotschate, Daniel; Gohlke, Dirk; Boehm, Rainer; Perez-Alonso, Maite</i>	
The Application of Electromagnetic Measurements for the Assessment of Skin Passed Steel Samples	1898
<i>Payton, Anthony; Karimian, Noushin; Wilson, John; Stolzenberg, Mathias; Schmidt, Rene; Davis, Claire; Zhou, Lei; Lombard, Patrick; Meilland, Philip; Martinez-De-Guerenu, Ane; Gurruchaga, Kizkitza</i>	
Nondestructive Determination of Textural Features in Steel Sheet	1906
<i>Stolzenberg, Mathias; Evertz, Thomas; Witte, Marco</i>	
Supervision on the Hardening Process of Roller Bearings by using Eddy Current Testing Methods	1914
<i>Seidel, Martin Wolfgang; Schießler, Rainer; Dobmann, Gerd; Morgner, Winfried</i>	
Detection of Near Surface Damages in Crank Shafts by using Eddy Current Testing	1922
<i>Zösch, Antje; Seidel, Christopher; Härtel, Konstantin; Seidel, Martin Wolfgang; Maier, Josef; Neun, Gerhard</i>	
Characterization of Cold Rolling-Induced Martensite in Austenitic Stainless Steels	1930
<i>Ruch, Marta Clelia; Fava, Javier; Spinoso, Cristina; Landau, Monica; Cosarinsky, Guillermo; Savin, Adriana; Novy, Frantisek; Turchenko, Vitalja; Craus, Mihail Liviu</i>	
In-Situ Monitoring of the Microstructure Evolution Using Eddy Current Technology	1942
<i>Bruchwald, Oliver; Frackowiak, Wojciech; Zwoch, Stefan; Reimche, Wilfried; Maier, Hans Jürgen</i>	
Material Characterization of Thin Coatings Using High Frequency Eddy Current Technology	1949
<i>Bruchwald, Oliver; Nicolaus, Martin; Frackowiak, Wojciech; Reimche, Wilfried; Möhwald, Kai; Maier, Hans Jürgen</i>	
Inductive Thermal Nondestructive Evaluation: Multi-dimension Pattern Interpretation and Separation	1955
<i>Gao, Bin; Zhu, Yuyu; Woo, Wai Lok; Tian, Gui Yun</i>	
Quantitative Defect Reconstruction in Active Thermography for Fiber-Reinforced Composites	1963
<i>Götschel, Sebastian; Maierhofer, Christiane; Müller, Jan P.; Rothbart, Nick; Weiser, Martin</i>	
Monitoring Fatigue Damage in CFRP Using Ultrasonic Birefringence	1973
<i>Fey, Peter; Kreuzbruck, Marc</i>	
Ultrasonic Phased Array Evaluation of the Integrity of Polyethylene Piping Systems	1983
<i>Gueugnaut, Dominique; Bouaffre, Romuald; Lopitiaux, Aymeric; Renaud, Romain; Angelini, Florent; Louet, Patrick</i>	
Nonlinear Ultrasonic Response of TATB-Based Polymer Bonded Explosive Under Compression Fatigue Loading	2002
<i>Yang, Zhan-jeng; Tian, Yong; Zhou, Hai-qiang; Xu, Yao; Zhang, Wei-bin; Li, Jingming</i>	
Weld Line Characterisation Using Various Contact and Non-Contact Ultrasound Techniques	2010
<i>Fey, Peter; Geyer, Alexander; Kreuzbruck, Marc</i>	
Characterization of Polymer-based Materials Using Fluorescence Method and Fractal Analysis	2020
<i>Chapnyi, Taras; Beshchasna, Natalia; Schreiber, Jürgen; Opitz, Jörg</i>	
Talbot-Lau Grating Interferometry CT for the Quantitative Characterization of Damage in Polymers After Impact and Static Tensile Testing	2028
<i>Senck, Sascha; Salaberger, Dietmar; Gusenbauer, Christian; Plank, Bernhard; Rao, Guruprasad; Kastner, Johann</i>	
Micro Computer Tomography (μCT) Set-Up for Long-Term Serial Measurements, Image Evaluation, and Subsequent Compressive Strength Tests on Frozen Sheep Vertebrae for Osteoporosis Research	2036
<i>Illerhaus, Bernhard; Maenz, Stefan; Bischoff, Sabine; Bungartz, Matthias; Bossert, Jörg; Kunisch, Elke; Kinne, Raimund</i>	
Three-dimensional Iterative X-ray Tomography Combined with Radiation Therapy	2043
<i>Zolotarev, Sergei; Vengrinovich, Valeriy V.</i>	
Acoustic Emission Analysis for Material Characterization of Sea Urchin Spines	2048
<i>Jüngert, Anne; Klang, Katharina; Termin, Kathrin; Krebs, Axel</i>	
Certification Scheme Based on the ISO 9712:2012 for NDT Personnel Certification by the Metal Magnetic Memory Method (ISO 24497:2007)	2057
<i>Kolokolnikov, Sergey; Dubov, Anatolii</i>	
Magnetic Impedance Based Spectral Tomography for Detection of Structural Inhomogeneity	2064
<i>Kecskes, Istvan; Trampus, Peter; Odry, Peter</i>	
Research on Magnetic Memory Effect of the Ferromagnetic Materials During the Friction Process	2071
<i>Zhao, KunPeng; Fan, Jianchun; Gao, Fumin; Hu, Zhibin; Li, Dianhong; Hong, Min</i>	
Energy Diagnostics - Is a Physical Basis of the Metal Magnetic Memory Method	2080
<i>Dubov, Anatolii</i>	

Non-Contact Magnetometric Diagnostics of Welded Joints of Main Gas Pipelines Susceptible to Sudden Failures	2087
<i>Kolokolnikov, Sergey; Dubov, Anatolii; Dubov, Aleksandr</i>	
Surface Inspection and Remanence Imaging with Magnetic Field Distortion Measurement	2092
<i>Youssef, Sargon; Szielasko, Klaus; Sourkov, Alexander; Gupta, Bhaawan; Youssef, Amir</i>	
About a New Classification of NDT Methods Based on Risks and Component Service Life	2100
<i>Dubov, Anatolii; Ladanyi, Peter; Trampus, Peter</i>	
Study on Stress Concentration Testing and Integrity Assessment of Offshore Oil and Gas Wells Casing	2103
<i>Zhang, Ximing; Fan, Jianchun; Liu, Di; Sun, Li</i>	
Terahertz Spectrum of Energetic Mixed Crystals, Phase-Transition Crystals and Co-Crystals	2112
<i>Du, Yu; Zhang, Wei-bin; Zong, Hehou; Li, Jingming</i>	
Real-time NDT of Automobile Bumpers with Millimeter-Wave Imaging Technology	2123
<i>Ahmed, Sherif S.; Karamalis, Athanasios; Koepfel, Tobias</i>	
Non-Contact Thickness Measurements with Terahertz Pulses	2132
<i>Yahyapour, Milad; Vieweg, Nico; Göbel, Thorsten; Roehle, Helmut; Deninger, Anselm</i>	
A Theory of Nonlinear Eddy Current NDE Model and its Experimental Tests	2140
<i>Nakagawa, Norio</i>	
Fractal Technique for the Extraction of Latent Safety Information from Multi Sensors Monitoring Data	2148
<i>Vengrinovich, Valeriy V.; Lykov, Vyacheslav</i>	
Eddy Current and Thermal Propagation for Quantitative NDT&E	2156
<i>Wang, Yizhe; Tian, Gui Yun; Gao, Bin</i>	
Machine Vision Platform for Non-destructive Testing Methods of Fibre Reinforced Plastics	2165
<i>Effenberger, Ira; Felix, Thomas; Frommknecht, Andreas; Fulga, Simina; Springhoff, Axel</i>	
Modeling and Simulation of Ultrasonic Testing – A Practical Guide by the Sub-Committee, Modeling and Imaging’ within the DGZfP Committee of Experts on UT	2174
<i>Spies, Martin</i>	
Elastic Wave Propagation in Polycrystalline Materials using Ray Tracing Model	2177
<i>Shivaprasad, Shridhara Bhat; Saini, Anuraag; Purushothaman, Padma; Balasubramanian, Krishnan; Krishnamurthy, C. V.</i>	
UT Simulation of Embedded Parametric Defects Using a Hybrid Model Based Upon Spectral Finite Element and Domain Decomposition Methods	2184
<i>Imperiale, Alexandre; Chatillon, Sylvain; Calmon, Pierre; Leymarie, Nicolas; Imperiale, Sébastien; Demaldent, Edouard</i>	
Imaging Beyond Aliasing	2190
<i>Volker, Arno; van Neer, Paul</i>	
Magnetic NDT for Steel Microstructure Characterisation – Modelling the Effect of Ferrite Grain Size on Magnetic Properties	2199
<i>Zhou, Lei; Davis, Claire; Kok, Piet; van den Berg, Frenk; Labbé, Stéphane; Martinez-de-Guerenu, Ane; Jorge-Badiola, Denis; Gutierrez, Isabel</i>	
3D Modeling and Experimental Validation of Flaw Responses Provided by Magnetic Flux Leakage NDT System Inspecting Ferromagnetic Pipes	2208
<i>Wolf, Guillaume; Deneuille, Francois; Demaldent, Edouard; Reboud, Christophe; Barrez, Stéphane; Trillon, Adrien</i>	
The Quantitative Study of TOFD Influenced by the Frequency Window of Autoregressive Spectral Extrapolation	2218
<i>Kang, Da; Jin, Shijie; Zhang, Kan; Luo, Zhongbing; Zhang, Shuxiao; Liu, Lili; Zhang, Donghui; Fang, Yunlong; Lin, Li</i>	
Comparison of Metal Artefact Reduction Algorithms from Medicine Applied to Industrial XCT Applications	2225
<i>Gusenbauer, Christian; Reiter, Michael; Salaberger, Dietmar; Kastner, Johann</i>	
The Non-contact Acoustic Inspection Method for Concrete Structures using the Defect Detection Algorithm that Combined Spectrum Entropy with Vibrational Energy Ratio	2234
<i>Sugimoto, Kazuko; Sugimoto, Tsuneyoshi; Utagawa, Noriyuki; Katakura, Kageyoshi</i>	
A Study of Guided Wave Propagation in Timber Pole Using Spectral Finite Element Method	2242
<i>Subhani, Mahbube; Li, Jianchun; Samali, Bijan</i>	
FEA Based Simulation of Ultrasonic Wave Propagation in Isotropic and Orthotropic Media	2252
<i>Datta, Debasis</i>	
Improved Modeling of the 3MA System's Incremental Permeability for on-Line Steel Strip Property Assessment	2261
<i>Meilland, Philip; Lombard, Patrick</i>	
Numerical Simulation in Alternating Current Field Measurement	2269
<i>Zheng, Wenpei</i>	
A Modeling Study of the SLOFEC™ Eddy Current System	2277
<i>Foucher, Fabrice; Kalai, Anouar; Kelb, Wilhelm; Ramadan, Salah; Delemontez, Jérôme</i>	
Simulation of Electromagnetic Inspection Techniques Using FEM Analysis	2291
<i>Gabi, Yasmine; Wolter, Bernd; Kern, Rolf; Conrad, Christian; Gerbershagen, Andreas</i>	
Modelling the IMPOC Response for Different Steel Strips	2299
<i>Skarlatos, Anastassios; Reboud, Christophe; Svaton, Tomas; Martinez-de-Guerenu, Ane; Kebe, Thomas; van den Berg, Frenk</i>	
Magnetic NDT for Steel Microstructure Characterisation – Modelling the Effect of Second Phase Distribution on Magnetic Relative Permeability	2308
<i>Zhou, Lei; Davis, Claire; Kok, Piet; van den Berg, Frenk</i>	
First Validation of CIVA RT Module with a Linear Accelerator in a Nuclear Context	2316
<i>Tisseur, David; Rattoni, Bernard; Lemaire, Hermine; Vienne, Caroline; Guillamet, Ronan; Cattiaux, Gérard; Sollier, Thierry</i>	
RT Modeling for NDT Recent and Future Developments in the CIVA RT/CT Module	2324
<i>Fernandez, Roman; Clement, Laura; Tisseur, David; Guillamet, Ronan; Costin, Marius; Vienne, Caroline; Colombie, Veronique</i>	
Modeling Computed Radiography with Imaging Plates	2332
<i>Yao, Min; Kaftandjian, Valérie; Duvauchelle, Philippe; Peterzol-Parmentier, Angela; Schumm, Andreas</i>	

Quantitative Simulation of Back Scatter X-ray Imaging and Comparison to Experiments	2340
<i>Jaenisch, Gerd-Rüdiger; Kolkoori, Sanjeevareddy; Bellon, Carsten</i>	
Comparison of Theoretical and Experimental Characteristics of the Acoustic Field TPA	2351
<i>Danilov, Vadim N.; Voronkova, Liubov V.</i>	
Modeling and Optimization of Transducers Implementing Technology Magnetic Flux Leakage (MFL)	2359
<i>Potapov, Anatoliy; Syasko, Vladimir; Pudovkin, Oleg</i>	
Tailored Ultrasound Fields for Application in Ultrasonic testing	2367
<i>Standop, Sebastian; Holzhauser, Daniel; Lammerich, Werner; Falter, Stephan</i>	
New Possibilities of Simulation Tools for NDT and Applications	2374
<i>Foucher, Fabrice; Fernandez, Roman; Lonne, Sébastien; Le Berre, Stéphane</i>	
Simulation of NDT Inspection in 3D Elastic Waveguide Involving Arbitrary Defect	2384
<i>Baronian, Vahan; Jezzine, Karim</i>	
A Fast General Spectrum Model for Quantitative Radiography Simulation	2392
<i>Deresch, Andreas; Bellon, Carsten; Jaenisch, Gerd-Rüdiger</i>	
A Tool for Insertion of Simulated Flaws on Real Acquisition Files	2399
<i>Bannouf, Souad; Lonne, Sébastien; Dubois, Philippe</i>	
New Way to handle Ultrasonic Complex Examinations	2407
<i>Puybouffat, Jean Michel; Agosthino, Dion; Gachadois, Nicolas; Conessa, Mickael</i>	
Simulation of Ultrasonic Inspection of Complex Components Using a 3D-FDTD-Approach	2415
<i>Pandala, Abhishek; Balasubramanian, Krishnan; Spies, Martin</i>	
Image-Based Finite Element Simulation of Ultrasonic Wave in Polycrystalline Metal using Phase-Field Modeling	2423
<i>Nakahata, Kazuyuki; Mizokami, Naoya</i>	
Bandwidth of MFL in Steel Plate Inspection	2430
<i>Pearson, Neil; Boat, Matthew; Mason, John</i>	
Modelling the ECT of U-Bend Steam Generator Tubes by the Boundary Element Method	2442
<i>Demaldent, Edouard; Reboud, Christophe; Nozais, Frédéric; Decitre, Jean-Marc; Sollier, Thierry; Cattiaux, Gérard</i>	
Overview of the Finite Elements Modeling of the Ultrasonic Propagation in Complex Media at EDF R&D	2450
<i>Lhuillier, Pierre-Emile; Schumm, Andreas; Chassignole, Bertrand; Lathuiliere, Bruno; Atrusson, Thibaut; Shahjahan, Sharfine; Saulauze, Ophélie</i>	
Combining Analytical and Monte Carlo Modelling for Industrial Radiology	2459
<i>Bellon, Carsten; Jaenisch, Gerd-Rüdiger; Deresch, Andreas</i>	
Transducer-to-Transducer Communication in Guided Wave Based Structural Health Monitoring	2468
<i>Moll, Jochen; De Marchi, Luca; Marzani, Alessandro</i>	
Study of PA-TOFD Inspection based on Numerical Simulation	2476
<i>Zhang, Shuxiao; Liu, Lili; Zhang, Donghui; Yang, Huimin; Fang, Yunlong; Kang, Da; Jin, Shijie; Zhang, Kan; Luo, Zhongbing; Lin, Li</i>	

VOLUME 4

Ray Tracing Boundary Value Problems: Simulation and SAFT Reconstruction for Ultrasonic Testing	2482
<i>Götschel, Sebastian; Höhne, Christian; Kolkoori, Sanjeevareddy; Mitzscherling, Steffen; Prager, Jens; Weiser, Martin</i>	
Simulation of Ultrasonic Inspections of Composite Structures in the CIVA Software Platform	2490
<i>Jezzine, Karim; Ségur, Damien; Ecault, Romain; Dominguez, Nicolas</i>	
Talbot- Lau Interferometry with a Non- Binary Phase Grating for Non-destructive Testing	2498
<i>Shashev, Yuri; Kupsch, Andreas; Lange, Axel; Brütze, Ralf; Bruno, Giovanni; Müller, Bernd R.; Hentschel, Manfred P.</i>	
Comparison Between Traditional Non-Destructive Techniques and Phase Contrast X-Ray Imaging applied to Aeronautical Carbon Fibre Reinforced Polymer	2507
<i>Gresil, Matthieu; Revol, Vincent; Consuelo Garcea, Serafina; Chemama, Roland; Kanderakis, Georges; Kitsianos, Konstantinos; Koulalis, Ilias; Sauer, Marc-Olivier; Trétout, Hervé; Madrigal, Ana-Maria</i>	
CT Parameter Studies for Porous Metal Samples	2515
<i>Lindemann, Sören; Schaller, Rolf</i>	
Study on Optical Properties of Nano-Cement Mortar using THz/sub-mm Electro-Magnetic Waves	2522
<i>Kim, Heon-Young; Oh, Seung Jae; Joo, Chulmin; Kang, Donghoon</i>	
On-Wing Gas-Turbine-Inspection and -Maintenance (Inspection of Very Small Surface Defects)	2530
<i>Pulver Silvio; Weger Ralf; Eckert Patrick; Bauer Joachim; Schrader Sigurd; Rautenberg Joachim; Mouti Sarah</i>	
Characterization of Cohesive and Adhesive Properties of Adhesive Bonds Using Transmitted Ultrasonic Waves	2534
<i>Siryabe, Emmanuel; Rénier, Mathieu; Meziane, Anissa; Galy, Jocelyne; Castaigns, Michel</i>	
Discrimination of Different Levels of Adhesion in a Bi Layer Aluminum/Epoxy Structure Using Lamb Waves	2539
<i>Gauthier, Camille; Ech Cherif El Kettani, Mounisif; Galy, Jocelyne; Leduc, Damien; Predoi, Mihai; Izbicki, Jean-Louis</i>	
Adhesive Thickness Measurement on Composite Aerospace Structures Using Guided Waves	2545
<i>Taupin, Laura; Chapuis, Bastien; Ducouso, Mathieu; Jenson, Frédéric; Cuwillier, Nicolas</i>	
Crack Growth Monitoring at CFRP Adhesive Bondings	2554
<i>Adebahr, Wolfgang; Sachse, Ronny; Middendorf, Peter; Kreuzbruck, Marc</i>	
Development and Optimization of the Laser Shock Wave Adhesion Test for Composite Bonding Quality Assessment	2562
<i>Ecault, Romain; Dominguez, Nicolas; Voillaume, Hubert; Campagne, Benjamin; Berthe, Laurent; Boustie, Michel; Touchard, Fabienne</i>	
Bondline Boundary Assessment of Cohesive Bonded Solid Woven Carbon Fiber Composites Using Advanced Diagnostic Methods	2570
<i>Stair, Sarah; Moore, David; Nelson, Ciji</i>	

In-situ Ultrasonic Testing of Polymeric Adhesive Bonds Exposed to Complex Mechanical and Environmental Loads	2579
<i>Rabe, Ute; Netzelmann, Udo; Hirsekorn, Sigrun</i>	
Innovating for Structural Adhesive Bonding Evaluation and Analysis with Ultrasounds : A Summary	2587
<i>Moysan, Joseph; Galy, Jocelyne; Siryabe, Emmanuel; Gauthier, Camille; Foze N'Djomo, Ludovic; Ech Cherif El Kettani, Mounsif; Potel, Catherine; Bruneau, Michel; Renier, Mathieu; Meziane, Anissa; Leduc, Damien; El Mahi, Aderrahim; Castaings, Michel; Izbicki, Jean Louis; Massacret, Nicolas</i>	
Finite Element Simulation of Ultrasound Propagating Through the Interface of Diffusion Bonded Dissimilar Nickel-Based Alloys	2597
<i>Sha, Zhengxiao; Shi, Yiwei; Liang, Jing; Dunne, Fionn P.E.; Lan, Bo</i>	
Focusing Air-Coupled Ultrasonic Transducers Based on Ferroelectrets	2606
<i>Schadow, Florian; Gaal, Mate; Bartusch, Jürgen; Dohse, Elmar; Köppe, Enrico</i>	
Non-destructive Testing of Future Rocket Boosters Using Air-Coupled Ultrasound	2614
<i>Huber, Armin</i>	
Air-Coupled Ultrasonic Inspection Technique as NDT Tool for Evaluation of Porous Wound Oxide/Oxide Composite Ceramics	2623
<i>Vasechko, Viacheslav; Schumucker, Martin; Rahner, Nils; Ullmann, Thomas</i>	
New Developments for Air-coupled Ultrasonic Techniques	2632
<i>Hillger, Wolfgang; Bühling, Lutz; Ilse, Detlef</i>	
Nonlinear NDT: A Route to Conventional Ultrasonic Testing	2641
<i>Solodov, Igor</i>	
Detecting the Fatigue Damage of Ropes Using the Nonlinear Acoustic Second Harmonic Parameter by the Magnetostrictive Guided Wave Method	2649
<i>Xu, Jiang; Zhou, Jinhai; Sun, Yong; Wu, Xinjun</i>	
Experimental and Numerical Analysis of the Nonlinear Interaction Between a Longitudinal Wave and Closed Crack	2657
<i>Saidoun, Abdelkrim; Meziane, Anissa; Rénier, Mathieu; Bacon, Christophe; Zhang, Fan; Walaszek, Henri</i>	
Optimized Analysis for Nonlinear Ultrasonic Imaging in Complex Media : Acoustic Imaging for Cultural Heritage	2665
<i>Dos Santos, Serge; Poirot, Nathalie</i>	
Thickness Measurement of Nickel Coatings on Walls of Nuclear Waste Storage Tanks	2673
<i>Syasko, Vladimir A.</i>	
NDE of the Spent Nuclear Fuel Disposal Canisters	2680
<i>Koskinen, Ari; Jäppinen, Tarja</i>	
Automated Ultrasonic Testing of Large Casted Cask Bodies Using Phased Array Techniques	2690
<i>Schmitte, Till; Chichkov, Nikolai; Nemitz, Oliver; Hinz, Tobias; Geller, Dieter; Orth, Thomas; Hocks jr., Heinrich; Opalla, Dirk; Frank, Jörg</i>	
Safe for 1 Million Years – NDT Matters!	2699
<i>Ronneteg, Ulf; Grybäck, Thomas; Bertovic, Marija; Müller, Christina; Pavlovic, Mato</i>	
Reliability Analysis of the Phased-Array Ultrasonic System used for the Inspection of Friction Stir Welds of Copper Canisters	2708
<i>Pavlovic, Mato; Müller, Christina; Ronneteg, Ulf</i>	
Determination of Biomass in Biotechnological Processes by Laser-Speckle-Photometry	2715
<i>Benjmus, Beatrice; Cikalova, Ulana; Schott, Carolin; Steingroewer, Juliane; Bley, Thomas; Werner, Thomas</i>	
Manufacturing of Reference Defects for NDT Using Low-Energy EDM	2720
<i>Casperson, Ralf; Knöppchen, Andreas; Pohl, Rainer; Zimme, Lutz; Bode, Johannes; Hollesch, Martin</i>	
Comparison of Non-Destructive and Destructive Examinations in Today's Inspection Practices	2730
<i>Aire, Godfrey; Chimezie, Henry</i>	
A Reliable and Tracer Gas Independent Leak Detector for Food Packages	2735
<i>Decker, Silvio</i>	
Technical Diagnostics - The Basis of Safety of Industrial Installations	2744
<i>Efimov, Alexey; Klyuev, Vladimir V.; Kuzelev, Nikolaji</i>	
NDT Practical Examinations / Assessments / Evaluations	2750
<i>Jansen, Harold</i>	
Evaluation of the Probability of Detection Effect by Steam Generator Chemical Cleaning	2755
<i>Joo, Kyungmun; Shin, Dongman; Kang, Yongseok; Shin, Kiseok</i>	
Non-destructive Testing of Galvanic Coatings on Parts of Liquid Rocket Engines	2761
<i>Kaloshin, Valentin; Kren, Alexander; Smirnov, Alexander; Machikhin, Alexander; Levochkin, Petr</i>	
The Modular Concept of Training, Advanced Training and Certification Personnel NDT for Rail Transport Russia	2770
<i>Konshina, Vera; Dymkin, Gregory</i>	
Using Adaptive Filtration in Digital Magnetodynamic Signal Processing	2774
<i>Kosobokov, Dmitry; Dymkin, Gregory; Churova, Valentyna</i>	
CURE MODERN - French-German Infrastructure Inspection, Urban and Regional Planning	2779
<i>Kurz, Jochen H.; Moryson, Ralf Marcel; Prybyla, Davy; Chassard, Carsten; Wundsam, Timo; Exner, Jan-Philipp</i>	
Leak Test of Test Parts with Pressure Compensation Elements Using the Test Medium Compressed Air	2791
<i>Lapsien, Joachim</i>	
Using Hilbert Transform for Signal Processing in Mechanical Impedance Analysis	2797
<i>Eremenko, Vladimir; Lysenko, Iuliia; Protasov, Anatoliy; Suslov, Evgeniy</i>	
The Real-Time Quantitative and Display Method for Incomplete Defect MFL Signals	2805
<i>Peng, Lisha; Huang, Songling; Zhao, Wei; Wang, Shen</i>	

Helium Leak Testing of Dangerous Goods Packagings	2815
<i>Schlick-Hasper, Eva; Seidler, Oliver; Goedecke, Thomas; Kraume, Matthias</i>	
The Use of Non-Destructive Methods in Technical Assessment of Agricultural Machinery Under Field Conditions	2825
<i>Selech, Jaroslaw; Kowalczyk, Jakub; Stachowiak, Arkadiusz; Ulbrich, Dariusz; Wlodarczyk, Konrad</i>	
Current Based Normalized Tripple Covariance As a Bearings Diagnostic Feature in Induction Motor	2831
<i>Swedrowski, Leon; Ciszewski, Tomasz; Gelman, Len</i>	
To What Extent May We Accept Manufacturing-related Microscopic Defects in Cast Steel?	2839
<i>Veile, Ines; Tempel, Achim; Weikert-Müller, Miriam</i>	
Internal Inspection of Flow Coating Pipelines	2840
<i>Artemyev, Igor; Kovalenko, Aleksandr; Klyuev, Zakhar; Artemiev, Boris</i>	
A Novel Non Destructive Technology for	
Pipe Grade Determination and MAOP/Design Pressure Validation of Operating Pipelines	2856
<i>Eiken, Thomas; Thale, Werner</i>	
Innovation in 3D Scanning Technology and Software is Pushing the Limits of Complex Corrosion and Mechanical	
Damage Assessment on Pipelines.....	2866
<i>Piron, Christophe; Lavoie, Jérôme-Alexandre; Beaumont, Jérôme</i>	
In-Process Control of Selective Laser Melting by Quantitative Optical Tomography.....	2875
<i>Bamberg, Joachim; Zenzinger, Günter; Ladewig, Alexander</i>	
The Use of Acoustic Emission for Process Monitoring in Steel Processing Lines	2883
<i>Niemi, Jan; Nilsson, Annika; Sollander, Hans</i>	
AkuProLas: Acoustic Inline Process Monitoring for Laser Welding Applications	2891
<i>Bastuck, Matthias; Herrmann, Hans-Georg; Wolter, Bernd; Böttger, David; Zimm, Peter-Christian</i>	
Non-Destructive Online-Testing Method for Friction Stir Welding Using Infrared Thermography.....	2901
<i>Kryukov, Igor; Schüddekopf, Sven; Böhm, Stefan; Mund, Malte; Kreling, Stefan; Dilger, Klaus</i>	
Applications of Active Thermography for Full Inspection in Parts Manufacture.....	2909
<i>Hou, Dexin; Ye, Shuliang</i>	
Design, Calibration and Validation of 24 GHz Resonators for Epoxy Resin Cure Monitoring Systems in the Fibre-	
Reinforced Plastics Fabrication	2917
<i>Groh, Jannis; Schür, Jan; Javdanitehran, Mehdi; Ziegmann, Gerhard; Vossiek, Martin</i>	
Application of Infrared Thermography Technique for the Monitoring of Cold Metal Transfer (CMT) Joining of	
Aluminium to Galvanized Steel	2928
<i>Kidangan, Renil Thomas; Unnikrishnakurup, Sreedhar; Puthiyaveetil, Nithin; Balasubramanian, Krishnan; Rajagopal, Prabhu; Phani Prabhakar, K. V.; Padmanabham, G.</i>	
Early Inspection of Drill String Fatigue Damage Based on Metal Magnetic Memory Method	2936
<i>Hu, Zhibin; Fan, Jianchun; Su, Xuemei; Gao, Fumin; Xin, Kang</i>	
Non Contact High Precision Distance Measurement Using Single Probe Ultrasonic Transducer	2943
<i>Ramankutty, Murali; Kumar Kokkoden, Dinesh; Prasanna Sudhakaran, Subodh; Chambalon, Byju; Mathew, Nimmy</i>	
Inline Production Monitoring by Cascading Radiographic and Computed Tomography Techniques	2951
<i>Stocker, Thomas; Oeckl, Steven; Eberhorn, Markus</i>	
In-Situ Observation of Bubble Formation in Neat Resin during the Curing Process by Means of X-Ray Computed	
Tomography	2958
<i>Plank, Bernhard; Helmus, Rhena; Gschwandtner, Maxi; Hinterhölzl, Roland M.; Kastner, Johann</i>	
MAIzfp – A Joint Research Effort on NDT of Fiber Reinforced Composites within the Leading Edge Cluster MAI	
Carbon	2966
<i>Sause, Markus G. R.; Stöfel, Rainer; Oster, Reinhold; Söhnchen, Richard; Jahnke, Peter; Seemann, Andrea; Goldammer, Matthias; Große, Christian U.</i>	
Comparison of NDT Techniques to Evaluate CFRP - Results Obtained in a MAIzfp Round Robin Test	2974
<i>Große, Christian U.; Goldammer, Matthias; Grager, Jan-Carl; Heichler, Gregor; Jahnke, Peter; Jatzlau, Philipp; Kiefel, Denis; Mosch, Michael; Oster, Reinhold; Sause, Markus G. R.; Stöfel, Rainer; Ulrich, Matthias</i>	
Numerical Modeling of Ultrasonic Inspection in Fiber Reinforced Materials with Explicit Microstructure	2985
<i>Zelenyak, Andreea-Manuela; Oster, Reinhold; Mosch, Michael; Jahnke, Peter; Sause, Markus G. R.</i>	
Ultrasonic Imaging of Carbon Fiber-Reinforced Plastics Using the Full Matrix Capture Data Acquisition	
Technique	2993
<i>Grager, Jan-Carl; Schrapp, Michael; Mooshofer, Hubert; Sause, Markus G. R.; Zelenyak, Andreea-Manuela; Große, Christian U.</i>	
Combined Acoustic Emission and Thermographic Testing of Fibre Composites.....	3004
<i>Goldammer, Matthias; Sause, Markus G. R.; Rieger, Detlef</i>	
T-Sense - The New Generation of Non-contact Transmission Imaging with Non-ionizing Radiation	3012
<i>Nüßler, Dirk; Schubert, Maik; Reible, Stefan; Kose, Stefan; Rosenthal, Thomas; Salman, Rahmi; Pohl, Nils</i>	
Advances in Scanning X-ray Beam Imaging	3020
<i>Rommel, Martin</i>	
Digital Radiography for Cargo Inspection – Data Acquisition and Evaluation.....	3027
<i>Luthi, Thomas; Flisch, Alexander; Plamondon, Mathieu; Hardmeier, Diana; Visser, Wicher</i>	
Electromagnetic Radiation of Terahertz Band	3034
<i>Efimov, Alexey; Matveev, Vladimir; Klyuev, Vladimir V.</i>	
New Concepts for the Academic Education in the Field of NDT at a German Technical University	3040
<i>Große, Christian U.; Pinkert, Katja</i>	
Public Organizations and Communities of Knowledge Sources	3052
<i>Klyuev, Zakhar; Artemyev, Igor; Artemiev, Boris</i>	

Training and Education Requirements for Occupational Radiation Protection in Industrial Radiography in Germany	3058
<i>Steege, Andreas; Kaps, Charlotte; Sölter, Barbara</i>	
International Academic Education in NDT at Master Level	3062
<i>Boller, Christian</i>	
Malaysia National Occupational Skills Standard (NOSS) as Guideline in Developing The Non-Destructive Testing (NDT) Instructional Training Materials	3070
<i>Hussein, Salbiah; Zainal Abidin, Ilham Mukriz; Hamzah, Abdul Razak</i>	
Development of a Training Programme Directed Towards the Certification in Accordance with EN ISO 9712 Standard in a Blended Learning Way	3082
<i>Rodríguez, Rodolfo; Gallardo, Jesús; Romero, Emilio</i>	
Industrial Demand Versus the NDT Technicians Integrity	3089
<i>Chiswo, Absolom</i>	
ICNDT WG1 on Qualification and Certification – Efforts on Global Harmonization of the Process of Personnel Certification	3094
<i>Mullin, Alexander</i>	
How to Deal with the ISO 9712 in a Globally Acting Company?	3099
<i>Frank, Stefan; Rauschenbach, Hans</i>	
A Proposal for a Structured Approach for the Industrial Experience Component of the Qualification for NDT Personnel Prior to Certification – the South African Experience	3107
<i>Johannes, Manfred</i>	
Challenges on Harmonization of National Approaches to Administration of Practical Examination	3115
<i>Babu, Sajeesh Kumar</i>	
Harmonized NDT Training, Qualification, Certification and Designation as implemented within the South African NDT Industry	3122
<i>Jansen, Harold</i>	
Supercomputing the Cascade Processes of Radiation Transport	3130
<i>Zhukovskiy, Mikhail; Markov, Mikhail; Podolyako, Sergey; Uskov, Roman; Bellon, Carsten; Jaenisch, Gerd-Rüdiger</i>	
Contemporary Witnesses for the Forensic Analysis of the 14th and 15th Century Fingerprints on Town Seals Examined by Latest Micro-CT Technology. Sphragistics in Combination with NDT	3136
<i>Berg, Karin U.; Berg, Hans Wolfgang</i>	
Advances in High Energy X-ray Digital Detector Arrays	3143
<i>Bueno, Clifford; Ross, William; Shaw, Jeffrey; Salisbury, Joshua; Nieters, Edward J; Hopkins, Forrest; Lester, Carl; Osterlitz, Mark; Albagli, Doug; Castleberry, Donald; Garms, Walter</i>	
A Comparative Study of Performance Testing for Domestic Flat Panel Detector	3152
<i>Chen, Hao; Li, Yunjian; Hu, Dongcai; Wang, Tengfang</i>	
Transfer of Technology as a Panacea to Indigenous Technological Development	3159
<i>Chimezie, Henry</i>	
Inner Stress and Strain Analysis of Granular Material by Compression Molding Using Micro-tomography	3162
<i>Dai, Bin; Tian, Yong; Zhang, Wei-bin; Lan, Lin-gang</i>	
Relationship Between Image Plates Physical Structure and Quality of Digital Radiographic Images in Weld Inspections	3172
<i>Ferreira de Oliveira, Davi; Silva, Aline S. S.; Machado, Alessandra S.; Gomes, Célio S.; Nascimento, Joseilson R.; Lopes, Ricardo T.</i>	
Research on Defect Depth Measurement Algorithm In Digital Radiography Testing	3186
<i>Guo, Wenming; Chen, Yuliang</i>	
Static and Dynamic In-situ-computed-tomography for Dimensional Metrology Applications	3192
<i>Hornberger, Peter; Rettenberger, Simon; Tissen, Alexander</i>	
Novel Radiographic Testing to Analyze the Porosity and Water Absorption of Bricks	3193
<i>Jayatilaka, Anura; Sivahar, Vigneswaran; Amarashinghe, Shantha; Thilawala, Nishan</i>	
Statistical Methods of an Assessment of Coherence of Experts Opinions in Interpretation of Radiogram	3201
<i>Alyeshin, Nikolay; Galkin, Denis; Krysko, Nikolay</i>	
Study on Girth Welding Once-through Penetration Length in Radiography	3212
<i>Liang, Lihong; Li, Dongyue</i>	
Dimensional Measurement of Nuclear Fuel Pellets using High Energy X-ray CT	3218
<i>Yamaguchi, Kazuma; Ohtake, Yutaka; Suzuki, Hiromasa; Nagai, Yukie; Ishimi, Akihiro; Katsuyama, Kozo</i>	
Highly-Sensitive Digital Fluoroscopy Systems for Non-destructive Testing	3225
<i>Mikhailov, Sergey; Troitskiy, Volodymyr; Pastovenskiy, Roman; Udovenko, Yuriy</i>	
Experience of Tangential Radiographic Inspection Application for Nuclear Power Facilities	3233
<i>Troitskiy, Volodymyr; Karmanov, Mikhail; Mikhailov, Sergey; Pastovenskiy, Roman</i>	
Perspectives of Development of Radiation Testing of Welded Joints	3239
<i>Troitskiy, Volodymyr</i>	
Good Practice Guide to Dark Room Operations	3247
<i>Vaughan, Hugo</i>	
Development of a Tangential Neutron Radiography System for Monitoring the Fatigue Cracks in Hydrogen Fuel Tanks	3250
<i>Vieyra, Malini; Iovea, Mihai; Tzortzatou, Katerina</i>	
The Application of 3D Printing and ICT Technology in Structure Research	3261
<i>Xiao, YongShun; Wan, ShengYun; Wang, Fengjuan; Li, Yantao</i>	

Recognition and Measurement of Small Defects in ICT Testing	3266
<i>Zhimin, Guo; Peijun, Ni; Weiguo, Zhang; Zicheng, Qi</i>	
On Non-Maximizable Ultrasonic Responses and POD Curves	3272
<i>Carboni, Michele; Cantini, Stefano</i>	
Magneto-inductive Diagnosis of Steel Parts with Unknown Fatigue Load History	3280
<i>Dobmann, Gerd; Zurek, Zbigniew Hilary</i>	
Handheld Solution for Measurement of Residual Stresses on Railway Wheels using EMATs	3289
<i>Jimenez, Jesus Antonio; Garcia, Victor; Boyero, Carlos</i>	
Study of Railway Axle Ultrasonic Testing Technology and Ability Improvement	3297
<i>Peng, Chaoyong; Gao, Xiaorong; Zhang, Yu; Peng, Jianping; Wang, Ai; Zhao, Bo; Yang, Yang</i>	
Advances in Ultrasonic Inspection of High Speed and High Integrity Rail Wheels	3304
<i>Desai, Anand</i>	

VOLUME 5

Near-Service Ultrasonic Testing of Solid Axles on Vehicles with Corrosive Load and its Technical Implementation - An Abstract of Precommissioning Inspection at DB Schenker Rail -	3312
<i>Bethke, Stefan; Kurz, Jochen H.</i>	
RAWIS: The Next Generation of Automated Inspection Systems for Railway Wheels.....	3319
<i>Knam, Andreas; Schwender, Thomas; Kappes, Wolfgang; Baumgarten, Rolf</i>	
Railway Track Stress-Strain State Control – The Missing Link in the Railroad Traffic Safety.....	3327
<i>Dubov, Anatolii; Dubov, Aleksandr</i>	
The Influence of RCF Crack Propagation Angle and Crack Shape on the ACFM Signal	3332
<i>Shen, Jialong; Zhou, Lei; Warnett, Jay; Williams, Mark; Rowshandel, Hamed; Nicholson, Gemma; Davis, Claire</i>	
Monitoring of Rail Track Using Guided Wave Ultrasound	3341
<i>Loveday, Philip; Ramatlo, Dineo; Burger, Francois</i>	
Detection and Evaluation of Rail Defects with Non-destructive Testing Methods	3349
<i>Dey, Anika; Kurz, Jochen H.; Tenczynski, Lukasz</i>	
New Approach for a More Detailed Visualisation of Ultrasonic Testing Data of Railway Hollow Axles	3358
<i>Völz, Uwe; Heilmann, Peter; Spieker, Marcel</i>	
Research on Non-contacted Immersion Ultrasonic Testing Method for Hollow Axles	3363
<i>Gao, Xiaorong; Zhang, Yu; Peng, Jianping; Wang, Zhen</i>	
Study of a Train Axle Inspection System for Automatically Detecting Defects in Hollow Axles	3369
<i>Gauna, Iñaki; Álvarez, Alberto; Flórez, Diego; Thorpe, Nigel; Delgado de Molina, Rafael; Acebes, Montserrat</i>	
Investigations to Introduce the Probability of Detection Method for Ultrasonic Inspection of Hollow Axles at Deutsche Bahn	3377
<i>Zoëga, Andreas; Kurz, Jochen H.; Oelschlägel, Thomas; Rohrschneider, Arne; Müller, Christina; Pavlovic, Mato; Hintze, Hartmut; Kanzler, Daniel</i>	
Mobile Mechanized Ultrasonic Testing on Wheel Set Axles with Longitudinal Drill	3385
<i>Weber, Andreas; Rohde, Karsten</i>	
The Use of Simulation in POD Curves Estimation: An Overview of the IIW Best Practices Proposal.....	3392
<i>Calmon, Pierre; Chapuis, Bastien; Jenson, Frédéric; Sjerve, Eric</i>	
An Overview of Standardized Capability for US Air Force Inspections	3399
<i>Lindgren, Eric A.; Brausch, John</i>	
Analyzing the Reliability of Non-destructive Tests Using the Modular Modell - A Practical Approach.....	3407
<i>Holstein, Ralf; Müller, Christina</i>	
Simulation of the Probability of Detection of a Longitudinal Flaw within a Pipe Using an Automated Ultrasonic Inspection	3413
<i>Lazzari, Olivier; Deneuve, Francois; Petit, Sébastien</i>	
Automated Data Analysis (ADA) of Ultrasonic NDE Data for Composites	3421
<i>Welter, John; Aldrin, John; Forsyth, David</i>	
Validation of an Ultrasonic-Phased-Array-Method for Testing of Circumferential Welds at Thin-walled Pipes.....	3431
<i>Hillmann, Susanne; Schubert, Frank; Schiller-Bechert, David Maximilian; Bor, Zsolt</i>	
Smart Data Analysis of the Results of Automated and Manual Ultrasonic Inspections on the Example of Rotor Forgings.....	3439
<i>Vrana, Johannes; Kadau, Kai; Amann, Christian; Klemm, Axel</i>	
Effect of Data Amount on Probability of Detection Estimation: Application to Eddy Current Testing.....	3440
<i>Goursolle, Thomas; Fauret, Thierry; Juliac, Etienne</i>	
Consideration of NDT Results Ambiguity While Estimating Rope Residual Strength by an Example of Drilling Rig Rope Monitoring System	3448
<i>Slesarev, Dmitry; Vorontsov, Alexander</i>	
Calibration of Pulsed Eddy Current Detection of Cracks Using Robust Statistics	3456
<i>Underhill, P. Ross; Butt, Dennis; Krause, Thomas W.</i>	
Pulsed Eddy Current Detection of Second Layer Cracks at Ferrous Fasteners in Aircraft Lap-Joint Structures	3463
<i>Butt, Dennis; Underhill, P. Ross; Krause, Thomas W.</i>	
Ultrasonic Sol-Gel Arrays for Monitoring High-Temperature Corrosion	3471
<i>Eason, Thomas J.; Bond, Leonard J.; Lozev, Mark G.</i>	
Comparison PA and TOFD Vs. Radiography: New Technologies Lead to a More Efficient Approach.....	3480
<i>Trimborn, Norbert</i>	

Reliability Analysis of the Ultrasonic Inspection System for the Inspection of Hollow Railway Axles	3487
<i>Pavlovic, Mato; Müller, Christina; Heckel, Thomas; Zoëga, Andreas</i>	
POD Evaluation Using Simulation: Progress and Perspectives Regarding Human Factors	3495
<i>Dominguez, Nicolas; Rodat, Damien; Guibert, Frank; Rautureau, Aurélien; Calmon, Pierre</i>	
How NDT Companies Can Benefit From Human Factors Knowledge	3502
<i>McGrath, Bernard; Holstein, Ralf; Bertovic, Marija</i>	
Use of Technical Diagnostics at an Assessment of Risk of Failure	3510
<i>Musatov, Viktor; Ivanov, Valery</i>	
Reliability Aspects and Multi-Parameter POD Formulation for Guided Wave Based SHM Techniques	3518
<i>Gianneo, Andrea; Carboni, Michele; Giglio, Marco</i>	
Evaluating RT Systems with a New POD Approach	3529
<i>Kanzler, Daniel; Müller, Christina</i>	
Productivity & Reliability Study of Non Destructive Testing Techniques for Inspection of Structural Welds in Construction Industry	3537
<i>Babu, Sajeesh Kumar; Chan, Alan; Chan, W. T.</i>	
A Modified Detectability Criterion for Conventional Radiography Simulation	3550
<i>Tisseur, David; Vienne, Caroline; Guérin, Pierre; Peterzol-Parmentier, Angela; Kaftandjian, Valérie; Duvauchelle, Philippe; Schumm, Andreas</i>	
‘Out’ with the Old and ‘in’ with the New – What Is The Implication of Technical Advances within NDT Industry? Is There Still Place for the ‘Old School’ Approach?	3559
<i>Motukisi, Ephraim</i>	
Comparison of Human Visibility on Film Radiography and Various Detectability Parameters Computed on Simulated Radiographs – A Statistical Study	3565
<i>Kaftandjian, Valérie; Duvauchelle, Philippe; Tisseur, David; Vienne, Caroline; Guérin, Pierre; Schumm, Andreas</i>	
Ultrasonic Response on Artificially Produced Fatigue Cracks in AISI 321 Austenitic Stainless Steel Weld	3573
<i>Koskinen, Ari; Leskelä, Esa</i>	
NDE Research of Nuclear Power Plant Primary Circuit Components and Concrete Infrastructure in Finland	3583
<i>Jäppinen, Tarja; Ferreira, Miguel</i>	
Method for Acoustic Characterization of Materials in Temperature	3591
<i>Cadot, Christophe; Saillant, Jean-François; Dulmet, Bernard</i>	
A Round Robin Test on Flash Thermography	3600
<i>Rothbart, Nick; Maierhofer, Christiane; Goldammer, Matthias; Hohlstein, Felix; Koch, Joachim; Kryukov, Igor; Mahler, Guido; Stotter, Bernhard; Walle, Günter; Oswald-Tranta, Beate; Sengebusch, Martin</i>	
X-Ray Tomographic In-Service-Testing of Circumferential Pipe Welds - The European Project TomoWELD	3608
<i>Ewert, Uwe; Redmer, Bernhard; Walter, David; Thiessenhusen, Kai-Uwe; Bellon, Carsten; Nicholson, P. Ian; Clarke, Alan; Finke-Härkönen, Klaus-Peter; Scharfschwerdt, Jörg W.; Rohde, Karsten</i>	
Resonant Defects: A New Approach to Highly-sensitive Ultrasound-Activated NDT Techniques	3618
<i>Solodov, Igor; Kreuzbruck, Marc</i>	
Detection of Pipe Wall-thinning Based on Change of Natural Frequencies of Shell Vibration Modes	3625
<i>Han, Soonwoo; Park, Jinho; Kang, To</i>	
Local Defect Resonance-based Shearography to Increase the Selectivity of Defects	3633
<i>Gulnizkij, Nikolai; Solodov, Igor; Kreuzbruck, Marc</i>	
Identification of Flawed CFRC Samples Using Local Acoustic Resonance Spectroscopy (LARS)	3641
<i>Jatzlau, Philipp; Müller, Maximilian; Große, Christian U.</i>	
X-ray Computed Tomography Reconstruction on Non-Standard Trajectories for Robotized Inspection	3649
<i>Banjak, Hussein; Costin, Marius; Vienne, Caroline; Kaftandjian, Valérie</i>	
Comparison of Reconstruction Methods for Computed Tomography with Industrial Robots using Automatic Object Position Recognition	3657
<i>Klein, Philipp; Herold, Frank</i>	
Novel Handling Concept for Production-integrated Computed Tomography	3665
<i>Eberhorn, Markus; Oeckl, Steven; Stocker, Thomas; Brunner, Franziska</i>	
Pipe Robots for Internal Inspection, Non-Destructive Testing and Machining of Pipelines	3672
<i>Reiss, Alexander</i>	
Robotic Inspection Solutions for Petrochemical Pressure Vessels, Developed and Tested in the PETROBOT Project	3680
<i>van den Bos, Barend; Strand, Joakim; Mallion, Adam; Oetiker, Moritz; Schler, Andreas; Black, Timothy; Potnis, Prashant</i>	
Phased-Array Assisted Manual Nozzle Inspection Solution with Data Archiving Capability	3690
<i>Habermehl, Jason; Badeau, Nicolas; St-Laurent, Martin; Prefontaine, Guy</i>	
New Use of a 3 Degrees Freedom Encoded Arm for Inspection of Welds with a Phased Array Probe	3698
<i>Flotté, Didier; Bittendiebel, Sylvie</i>	
3D-Robotized Air-Coupled Ultrasound Measurements of Large Components	3707
<i>Adebahr, Wolfgang; Bernhardt, Yannick; Kreuzbruck, Marc</i>	
Geometric Calibration in Active Thermography Applications	3715
<i>Schmidt, Thomas; Frommel, Christoph</i>	
ENIQ-Qualified Visual Examinations by Means of a Remote-Controlled Submarine	3723
<i>Tsvetkov, Elenko; Heinsius, Jan</i>	

In-line Characterisation of Microstructure and Mechanical Properties in the Manufacturing of Steel Strip for the Purpose of Product Uniformity Control	3731
<i>van den Berg, Frenk; Kok, Piet; Yang, Haibing; Aarnts, Maxim; Vink, Jan-Jaap; Beugeling, Willem; Meiland, Philip; Kebe, Thomas; Stolzenberg, Mathias; Krix, David; Peyton, Anthony; Zhu, Wenqian; Martinez-de-Guerenu, Ane; Gutierrez, Isabel; Jorge-Badiola, Denis; Gurruchaga, Kizkitza; Lundin, Peter; Volker, Arno; Mota, Mariana; Monster, Johan; Wirdelius, Hakan; Mocci, Claudio; Nastasi, Gianluca; Colla, Valentina; Davis, Claire; Zhou, Lei; Schmidt, Rene; Labbe, Stephane; Reboud, Christophe; Skarlatos, Anastassios; Svaton, Tomas; Leconte, Vincent; Lombard, Patrick</i>	
Ultrasonic Velocity and Attenuation Measurements in L80 Steel and their Correlation with Tensile Properties	3741
<i>Wiskel, J. Barry; Kennedy, Jacob; Ivey, Douglas G.; Henein, Hani</i>	
Speed Effect on a Multi-frequency Electromagnetic NDT System Used for the Characterisation of the Microstructure of Strip Steel	3750
<i>Zhu, Wenqian; Peyton, Anthony; Van Den Berg, Frenk; Yang, Haibing; Commandeur, Colin</i>	
In-line Quantitative Measurement of Transformed Phase Fraction by EM Sensors during Controlled Cooling on the Run-out Table of a Hot Strip Mill	3758
<i>Yang, Haibing; van den Berg, Frenk; Luinenburg, Arie; Bos, Cornelis; Kuiper, Gedo; Mosk, Jos; Hunt, Peter; Dolby, Mark; Flicos, Michael; Peyton, Anthony; Davis, Claire</i>	
High-speed Ultrasonic Testing of ERW Pipes	3766
<i>Deutsch, Wolfram A. Karl; Joswig, Michael; Katwinkel, Rainer; Harmuth, Holger</i>	
Automated Testing of Bar Stock Materials for Aerospace Applications with Advanced Automation Features	3774
<i>Asche, Cord; Maier, Josef; Falter, Stephan</i>	
Ultrasonic Rotational Test Mechanics with Integrated Phased-Array-Technology for Gapless Detection of Oblique Flaws up to $\pm 22^\circ$ by Applying the Paint Brush Method	3787
<i>Schmitz, Stephan; Schwabe, Matthias; Meyer, Peter</i>	
Development of High Sensitivity Ultrasonic Inspection System for Welding Part of HFW Pipes	3794
<i>Matsui, Yutaka; Iizuka, Yukinori; Okabe, Takatoshi; Tomohiro, Inoue; Suzuki, Masahito</i>	
Measurement and Modelling of Through Thickness Ultrasonic Velocity in X70 Pipeline Steel	3801
<i>Wiskel, J. Barry; Kennedy, Jacob; Vasudev, Kartik; Ivey, Douglas G.; Henein, Hani</i>	
Porosity Determination of Carbon Fiber Reinforced Plastics (CFRP) in Aviation Applications Using Ultrasound Without a Back Wall Echo	3812
<i>Kurz, Jochen H.; Rabe, Ute</i>	
Measurement of Wall Thickness and External Diameter in Parallel as well as Calculation of Tube's Geometrical Cross Section Values with a ROWA USIPxx Phased Array Ultrasonic Testing Machine	3821
<i>Schmitz, Stephan; Koers, Daniel</i>	
Quantifying Drilling Induced Delamination in Carbon-Fibre-Reinforced Epoxy Laminates Using a Fast, Manual and Mobile Ultrasonic-Based Procedure as Compared to Low-Magnification Microscopy	3827
<i>Schuhmacher, Silvia; Daubert, Kai; Schoen, Georgeta; Haeger, Andreas; Lissek, Fabian; Schneider, Gerhard</i>	
Improvement of On-line Ultrasonic Detection for Internal Flaws in Steel Strip using Adaptive Signal Processing	3838
<i>Ozeki, Takafumi; Iizuka, Yukinori; Takada, Hideki; Hashimoto, Masayuki</i>	
Development of Concave and Convex Roll Defect Inspection Technology for Steel Sheets by Magnetic Flux Leakage Testing Method	3844
<i>Matsufuji, Yasuhiro; Koshihara, Takahiro; Matsumoto, Minoru</i>	
Thermographic Crack Detection in Hot Steel Surfaces	3853
<i>Myrach, Philipp; Polomski, Benjamin; Le Claire, Elisabeth; Unnikrishnakurup, Sreedhar; Vengara, Nitin; Balasubramanian, Krishnan; Ziegler, Mathias</i>	
Investigations for Determining Surface Crack Depth with Inductive Thermography	3861
<i>Oswald-Tranta, Beate</i>	
Detection of Filament Misalignment in Carbon Fibre Production Using a Stereovision Line Scan Camera System	3871
<i>Geinitz, Steffen; Margraf, Andreas; Wedel, André; Witthus, Sebastian; Drechsler, Klaus</i>	
Non-Contact Inline Monitoring of Thermoplastic CFRP Tape Quality Using Air-Coupled Ultrasound	3882
<i>Fey, Peter; Meiler, Stefan Albert; Kreutzbruck, Marc</i>	
Development of an Eddy Current based Inspection Technique for the Detection of Hard Spots on Heavy Plates	3890
<i>Schneibel, Gerald; König, Christoph; Gopalan, Aschwin; Dussaulx, Jean-Marc</i>	
Real-time Filter Technique for Effective Denoising of High Frequency EC Signals	3898
<i>Schmitte, Till; Hinz, Tobias; Nemitz, Oliver; Orth, Thomas; Lüick, Christian; Bald, Jochen</i>	
Industrial Eddy Current Array Testing Solution for Cylindrical Products	3905
<i>Mavadat, Maryam; Lepage, Benoit</i>	
Eddy Current Nondestructive Testing of Large Diameter Pipes Through Thick Protective Coatings	3914
<i>Efimov, Alexey; Shubochkin, Andrey; Martyanov, Eugeny</i>	
A Quantum Well Hall Effect Magnetovision System for Non-Destructive Testing	3923
<i>Liang, Chen-Wei; Ahmad, Ehsan; Balaban, Ertan; Sexton, James; Missous, Mohamed</i>	
Novel Air-coupled Ultrasonic Transducer Combining the Thermoacoustic with the Piezoelectric Effect	3931
<i>Gaal, Mate; Daschewski, Maxim; Bartusch, Jürgen; Schadow, Florian; Dohse, Elmar; Kreutzbruck, Marc; Weise, Matthias; Beck, Uwe</i>	
Forced Magnetic Field Leakage (FMFL) – A New Approach to Non-Destructive Detection of Embedded Ferromagnetic Materials in Non-Magnetic Hosts	3937
<i>Ahmad, Ehsan; Liang, Chen-Wei; Balaban, Ertan; Missous, Mohamed</i>	
Recent Advancements in Lorentz Force Eddy Current Testing	3945
<i>Schmidt, Reinhard; Weise, Konstantin; Carlstedt, Matthias; Ziolkowski, Marek; Brauer, Hartmut; Gorges, Stephan</i>	
A New Pattern of Acoustic Delay-Line Based on Wedge Wave	3953
<i>Yang, Che-Hua; Tung, Po-Hsien; Tai, Shih-Chieh</i>	

Wood Adhesives for Non-Destructive Structural Monitoring	3961
<i>Winkler, Christoph; Schwarz, Ulrich</i>	
Monitoring of Penetration System Performance Due to ISO 3452-1 by Using Test Panels due to ISO 3452-3	3969
<i>Kinzel, Andreas; König, Wolfgang; Kühn, Heide; Dittmar, Nicole</i>	
The Implementation of the New Standard EN ISO 18563 for Ultrasonic Phased-Array Systems at the Manufacturer	3978
<i>Büchler, Johannes; Schlengeremann, Udo</i>	
Porosity – ‘The Good, the Bad and the Ugly’ of Radiographic Testing	3985
<i>Vaughan, Hugo</i>	
A New Characterization Procedure for Computed Radiography Performance Levels Based on EPS, SNR and Basic Spatial Resolution Measurements	3990
<i>Ewert, Uwe; Zscherpel, Uwe; Bär, Sylke</i>	
Accurate Ultrasonic Stress Measurement in Already Tightened Bolts by Means of Optimized Emat	3998
<i>Walaszek, Henri; Bouteille, Patrick; Clausse, Bastien; Lhemery, Alain; Zhang, Fan</i>	
Stress Distributions Generated by Straightening of Steel Pipes	4006
<i>Kaack, Michael; Orth, Thomas; Staron, Peter; Schell, Norbert; Schreyer, A.; Theis-Bröhl, Katharina; Raatz, Sascha</i>	
Non-Destructive Determination of Residual Stresses in the Spiral Submerged Arc Welded Steel Pipes	4013
<i>Kaleli, Tugçe; Gür, C. Hakan</i>	
Ultrasonic Measurement of Residual Stresses in Welded Elements and Structures	4019
<i>Kudryavtsev, Yuriy; Kleiman, Jacob</i>	
Nondestructive Monitoring of the Variations in Microstructure and Residual Stress in the Carburized Steels	4029
<i>Hizli, Hüseyin; Davut, Kemal; Simsir, Caner; Gür, C. Hakan</i>	
Advance in Stress Measurement via Barkhausen Noise	4037
<i>Vengrinovich, Valeriy V.; Vintov, Dmitriy; Prudnikov, Andrew; Podugolnikov, Pavel; Ryabtsev, Vladimir</i>	
Nondestructive Characterization of Ageing Phenomena in Heat Resistant Steels by Means of Micromagnetic Techniques	4044
<i>Rabung, Madalina; Kopp, Melanie; Tschuncky, Ralf; Kuhn, Bernd; Uchimoto, Tetsuya</i>	
Investigation of Magnetic Barkhausen Noise and Dynamic Domain Wall Behavior for Stress Measurement	4054
<i>Gao, Yunlai; Tian, Gui Yun; Qiu, Fasheng; Wang, Ping; Ren, Wenwei; Gao, Bin</i>	
Development of the Cable Tension Testing Instrument Based on the Permanent Magnetizer	4061
<i>Wu, Xinjun; Deng, Dongge</i>	
Ultrasonic Nondestructive Testing and Regulation Technology of Residual Stress	4069
<i>Xu, Chunguang; Song, Jianfeng; Song, Wentao; Wang, Junfeng; Tian, Haibing</i>	
Image Reconstruction of Corrosion under Coating Film by Dynamic Shear Strain Analysis of Lamb Waves	4078
<i>Teramoto, Kenbu; Sanaul, Rabbi Md.</i>	
Determination of Preload in Bolts by Ultrasound Without Referencing in Unloaded State	4086
<i>Becker, Michael; Groß, Nadja; Herzer, Hans-Rüdiger</i>	
Practical Ultrasonic Damage Monitoring on Pipelines Using Component Analysis Methods	4093
<i>Liu, Chang; Dobson, Jacob; Cawley, Peter</i>	
Feasibility of Passive SHM for Corrosion Detection by Guided Wave Tomography	4101
<i>Druet, Tom; Chapuis, Bastien; Calmon, Pierre; Moulin, Emmanuel</i>	
Offshore Foundation Monitoring by Guided Waves – Challenges and Perspectives	4109
<i>Weihnacht, Bianca; Frankenstein, Bernd; Gaul, Tobias; Neubeck, Robert; Schubert, Lars</i>	
Non-Invasive Monitoring Strategies for Engineering Structures using Guided Waves	4117
<i>Jackson, Paul; Mudge, Peter</i>	
On- and Offline Ultrasonic Inspection of Additively Manufactured Components	4125
<i>Rieder, Hans; Spies, Martin; Bamberg, Joachim; Henkel, Benjamin</i>	

VOLUME 6

Modelling of Condition Monitoring with Imperfect Inspections	4133
<i>Ulansky, Vladimir; Raza, Ahmed</i>	
Prototypic Simulation Platform for Structural Health Monitoring Ultrasonic Transducer Networks	4142
<i>Sridaran Venkat, Ramanan; Boller, Christian; Ravi, Nitin Balaji; Mahapatra, Debiprosad Roy; Chakraborty, N.</i>	
Vibration Signal Modeling for a Planetary Gear Set	4152
<i>Liu, Libin; Liang, Xihui; Zuo, Ming J</i>	
Potential Drop Creep Strain Monitoring	4160
<i>Corcoran, Joseph; Cawley, Peter; Nagy, Peter</i>	
Enhanced Sensitivity of Low Frequency (LF) RFID Sensor Signal for Structural Health Monitoring (SHM) in High Temperature Environment	4167
<i>Imam, Ali; Tian, Gui Yun</i>	
Structural Health Monitoring of Compressor Blades with the use of Variable Reluctance Sensor and Impedance Method	4175
<i>Witos, Miroslaw; Wachlaczzenko, Michal</i>	
Development of the Fabrication Process and Characterization of Piezoelectric BaTiO₃/Epoxy Composite to the Used for Coated Ultrasonic Transducer Patterns in Structural Health Monitoring	4183
<i>Bareiro Ferreira, Oscar; Sridaran Venkat, Ramanan; Adam, Jens; Boller, Christian</i>	
Optimized ATEX Acoustic Emission Measuring Chains for Particle Size Monitoring in Industrial Plants	4192
<i>Dumont, Marine; Collura, Stefano; Urbank, Thomas; Rossetti, Damiano</i>	

Research on the Signal Propagation Characteristics of Acoustic Emission and Localization of the Gas Pipe Network Leak	4202
<i>Gong, Piao; Xu, Changhang; Han, Guoxing; Shi, Huandi; Chen, Guoming</i>	
The Virtual Tap Test – A Training System for Wind Turbine Rotor Blade Inspectors	4211
<i>Andreisek, Gaetano; Korhals, Dominik; Große, Christian U.; Seeber, Bernhard U.</i>	
Structural Health Monitoring and Non Destructive Testing of Fatigue Crack Growth in Bonded CFRP-CFRP Lap Joints	4218
<i>Gianneo, Andrea; Carboni, Michele; Bernasconi, Andrea; Galeazzi, Riccardo</i>	
Smelting Furnace Non Destructive Testing (NDT) and Monitoring	4229
<i>Sadri, Afshin; Ying, Wai Lai; Erskine, Jennifer; MacRosty, Richard</i>	
Damage Detection and Healing Performance Monitoring using Embedded Piezoelectric Transducers in Large-Scale Concrete Structures	4241
<i>Karaiskos, Grigorios; Tsangouri, Eleni; Aggelis, Dimitrios G.; van Tittelboom, Kim; De Belie, Nele; Van Hemelrijck, Danny</i>	
Lamb Wave Interactions in CFRP Plates	4249
<i>Mook, Gerhard; Pohl, Jurgen; Simonin, Yury</i>	
A Novel Piezoelectric Fibre Patch Transducer for Shear Horizontal Wave Modes	4258
<i>Köhler, Bernd; Gaul, Tobias; Schubert, Frank; Lieske, Uwe</i>	
Flexible Transducers for Guided Wave Structural Health Monitoring of Porous Composite Plates	4266
<i>Yin, Ching-Chung; Chiu, Cheng-Wei; Tsai, Wei-Che; Chen, Jing-Si</i>	
Statistical Recognition of Structural Health in Composites through Ultrasonic Testing	4274
<i>Memmolo, Vittorio; Ricci, Fabrizio; Boffa, Natalino Daniele; Maio, Leandro; Monaco, Ernesto</i>	
A Portable Magnetic Flux Leakage Testing System for Industrial Pipelines Based on Circumferential Magnetization	4283
<i>Zhao, Kunming; Wu, Xinjun; Shen, Gongtian; Wang, Baoxuan</i>	
Acousto-Optic Module for Combined Remote Visual and Spectral Endoscopic Inspection	4291
<i>Machikhin, Alexander; Kaloshin, Valentin; Perfilov, Alexey; Batshev, Vladislav; Kvak, Vladimir</i>	
The Use of Permanent Magnets for Magnetic Particle Inspection	4297
<i>Cain, Keith; Purcell, Marius</i>	
Monitoring of Fatigue and Stress-Strain State of Structures and Equipment with New Magnetic Transducer	4305
<i>Zakharov, Vladimir; Bezlyudko, Gennadiy; Solomakha, Roman; Aman, Alexander</i>	
Capability of Modern Tank Floor Scanning with Magnetic Flux Leakage	4309
<i>Costain, Jim; Pearson, Neil; Boat, Matthew</i>	
Chill Marks Effects Detection Algorithm for Plant IMPOC Data	4320
<i>Nastasi, Gianluca; Mocci, Claudio; Colla, Valentina; van den Berg, Frenk; Mulder, Ronald; Beugeling, Willem; Kebe, Thomas</i>	
Safety and Productivity Innovations in Liquid Penetrants and Magnetic Particles Testing	4328
<i>Cevenini, Michele</i>	
Inspection of Clad Materials Using Massive Multi-Frequency Excitation and Spectrogram Eddy Current Method	4335
<i>Chady, Tomasz</i>	
Development of a System to Corrosion Detection Using Pulsed Eddy Current	4342
<i>Fagundes do Carmo, Carla Beatriz; Rebello, Mateus; Santos, Ygor; Simas Filho, Eduardo; Silva, Ivan; Farias, Cláudia</i>	
Well Integrity and Corrosion Inspection of Surface Casings and Conductors of Offshore Wells with the D-PEC Inspection Technology	4350
<i>Gabriëls, Fred</i>	
Investigation on Features of Alternating Electromagnetic Field for Perpendicular and Parallel Cracks Detection	4354
<i>Ge, Jiu hao; Li, Wei; Chen, Guoming; Yuan, Xin'an; Wu, Yanyun</i>	
Motion-induced Eddy Current Testing of Composite Materials	4361
<i>Gorges, Stephan; Brauer, Hartmut; Ziolkowski, Marek; Carlstedt, Matthias; Weise, Konstantin; Schmidt, Reinhard; Mengelkamp, Judith</i>	
Investigation of Suspended Sediment Properties Based on Scholte Wave	4370
<i>Han, Qingbang; Qi, Lihua; Jiang, Xueping; Tong, Ziwei; Zhang, Yu; Zhu, Changping</i>	
Various Approaches to Obtain an Eddy Current Signal in Case of Overheating	4379
<i>Härtel, Konstantin; Zösch, Antje; Seidel, Martin Wolfgang; Seidel, Christopher</i>	
About the Performance of Non-Multiplication Magnetization Method in a Magnetic Particle Testing	4384
<i>Hori, Michitaka; Kasahara, Akihito</i>	
Eddy Current Array and Liquid Penetrant Testing Contrast Testing on Austenite Stainless Steel Piping	4392
<i>Li, Yuntao; Hu, Bin; Liu, Wen; Wan, Benli</i>	
Measurements of the Extension of the Magnetite Piles on Steam Generator Tubing with Eddy Current Techniques	4400
<i>Jäppinen, Tarja; Ala-Kleme, Sann</i>	
Water Tightness from a Leak Detection Point of View	4408
<i>Konwitschny, Rudolf</i>	
Identification of the Fatigue Cracking of the Aluminide Layers on the Nickel Alloy with the Application of the Optical Method Espi and Eddy Current Method	4414
<i>Kukla, Dominik; Szlagowska-Spychalska, Justyna</i>	
Magnetic Particle Testing using Cross- and Additional Orthogonal Magnetic Coils - Application in Components of Large Dimensions	4421
<i>Link, Rainer; Riess, Nathanael</i>	
Imaging of Local Defects of Pipes Based on Deconvolution Technology	4429
<i>Luo, Qingwang; Shi, Yibing; Wang, Zhigang; Zhang, Wei; Zhang, Yun</i>	
Improvement of the Eddy Current Method of Non-Destructive Testing with Pulsed Mode Excitation	4437
<i>Dugin, Oleksandr; Kuts, Yuriy; Lysenko, Iuliia; Protasov, Anatoliy</i>	

A Pedestrian and Vehicle-Mounted System for Detecting RCF in Rail using Eddy Currents	4445
<i>Saunders, Scott; Crocker, Robert</i>	
Non-destructive Research of the Friction Surface of the Brake Discs in the Aspect of Evaluation of the Braking Process	4454
<i>Sawczuk, Wojciech; Kowalczyk, Jakub; Ulbrich, Dariusz; Kolodziejski, Sawomir; Selech, Jaroslaw</i>	
Vacuum Tests of a Very large Component: The Final Test Cryostat System for the ITER Central Solenoid Modules	4462
<i>Scheller, Holger; Schaubel, Kurt; Schrauth, Bernhard; Smith, John; Theisen, Eckhard; Walter, Wolfgang; Wolf, Ramona</i>	
Scanning Magnetization Devices	4470
<i>Troitskiy, Volodymyr</i>	
Eddy Current Multi-Channel Module for In-line High-speed Inspection of Railroad Rails	4478
<i>Opanasenko, Anton; Iurchenko, Alexander; Lutsenko, Gennadii; Uchanin, Valentyn</i>	
PROMPRYLAD Family of Eddy Current Flaw Detectors – From Simple to More Complicated	4485
<i>Uchanin, Valentyn; Lutsenko, Gennadii; Opanasenko, Anton; Dzhananian, Arsen</i>	
Nondestructive Testing Systems with Magnetic Flux Leakage (MFL)	4493
<i>Youssef, Sargon; Szielasko, Klaus; Kurz, Jochen H.; Tschuncky, Ralf</i>	
Dark-Field Imaging on Micro- and Macro Focus Sources in Comparison with Normal Micro-CT for Building Materials	4494
<i>Kaufmann, Rolf; Yang, Fei; Beltran, Mario; Hartmann, Stefan; Griffa, Michele; Lura, Pietro; Neels, Antonia</i>	
Progress Survey of X-Ray Refraction Imaging Techniques	4498
<i>Kupsch, Andreas; Müller, Bernd R.; Hentschel, Manfred P.; Lange, Axel; Trappe, Volker; Laquai, René; Shashev, Yury; Evsevlev, Sergei; Bruno, Giovanni</i>	
Multi-source Inspection of Fiber-reinforced Materials	4507
<i>Chady, Tomasz; Goracy, Krzysztof</i>	
Terahertz Technology Approaches the Markets: Survey about the Current Developments	4515
<i>Kremling, Stefan; Hochrein, Thomas</i>	
Monitoring of Drying of Cement Screed with the Help of Ultra-wideband Microwaves and Air-coupled Antennas	4526
<i>Manavipour, Maryam; Sklarczyk, Christoph; Szielasko, Klaus</i>	
Laser Projected Photothermal Thermography for Characterizing Hidden Defects	4533
<i>Thiel, Erik; Kreutzbruck, Marc; Ziegler, Mathias</i>	
Induction Excited Thermography in Industrial Applications	4539
<i>Srajbr, Christian</i>	
Data Processing Procedures for Defects Evaluation in Compsite Materials by Means of Stimulated Thermography	4548
<i>Galiatti, Umberto; Palumbo, Davide</i>	
New ISO Calibration Block for Phased Array Ultrasonic Testing	4557
<i>Chauveau, Daniel; Ginzler, Ed; Sjerve, Eric; Calmon, Pierre; Bird, Colin; Moles, Michael</i>	
A Simplified Approach for DAC with Phased-Array	4566
<i>Oberdörfer, York</i>	
High Resolution Phased Array Imaging Using the Total Focusing Method	4571
<i>Deutsch, Wolfram A. Karl; Roye, Werner; Rast, Helge; Benoist, Philippe</i>	
Progress in the Development of a FMC/TFM Based Ultrasonic System	4579
<i>Ten Grotenhuis, Raymond; Hong, Andrew; Verma, Yadav</i>	
Research on Correction and Optimization of Post-processing Imaging of Structure with Non-planar Interface Using Full Matrix Data of Ultrasonic Array	4588
<i>Zhou, Zhenggan; Li, Yang; Zhou, Wenbin</i>	
Optimized Semi-Flexible Matrix Array Probes for Large Rotor Shafts and DGS Sizing Diagram Simulation Tool	4596
<i>Devos, Dany; Maes, Guy; Tremblay, Patrick</i>	
FAAST Very Fast Phased Array System	4605
<i>Harrich, Xavier; Coperet, Philippe</i>	
Scalability and Advanced Inspection Methods in Ultrasonic Phased Array Instrumentation	4613
<i>Grondin, Etienne; Badeau, Nicolas</i>	
Comparison of Ultrasonic Phased Array Probes Based on PMN-PT and PZT 1-3 Composites	4622
<i>Walter, Susan; Herzog, Thomas; Schubert, Frank; Heuer, Henning</i>	
Check Valve Diagnosis by Sectorial Scanning Phased Array Ultrasonic Technique	4629
<i>Calas del Castillo, Héctor Mariano; De la Fuente, Bautista; Barcenilla, Victor; Resa López, Pablo Ismael; Fernández Muñoz, Francisco J.</i>	
Adaptive Ultrasonic Imaging with a Phased-array Probe Equipped with a Water-filled Conformable Wedge	4639
<i>Robert, Sébastien; Cartier, François; de Roumilly, Loïc; Mondou, Rémi-Olivier; Lhuillier, Pierre-Emile; Garzino, Geoffrey</i>	
Application of a FMC/TFM Ultrasonic System to Inspection of Austenitic Welds	4647
<i>Ten Grotenhuis, Raymond; Chen, Andrew; Hong, Andrew; Verma, Yadav</i>	
Advantages and Complementarity of Phased-Array Technology and Total Focusing Method	4656
<i>Reverdy, Frédéric; Benoist, Gregoire; Le Ber, Laurent</i>	
Application of the Total Focusing Method for Improved Defect Characterization in the Production of Steel Tubes, Pipes and Plates	4664
<i>Schmitte, Till; Nemitz, Oliver; Chichkov, Nikolai; Orth, Thomas</i>	
The Use of Ultrasonic Inspections at Elevated Temperature	4672
<i>Gabriëls, Fred; Eras, Roger</i>	

Ultrasonic and Magnetic Particle Testing of New Railway Wheels	4677
<i>Deutsch, Wolfram A. Karl; Weber, Wolfgang; Maxam, Klaus; Razeng, Mathias; Bartholomai, Frank</i>	
Experience with Advanced NDT Methods in Turbine Field Service	4685
<i>Rauschenbach, Hans; Opheys, Michael</i>	
Ultrasound Tomography on Hyper Velocity Impact Targets	4693
<i>Raith, Manuel; Große, Christian U.</i>	
Application of Pseudo-stochastic Excitation in Ultrasonic Echo Experiments for Improved Time-resolution at Low Frequencies	4701
<i>Holstein, Peter; Ziegenhals, Gunter; Tharandt, Andreas; Gillmeister, Konrad; Bodi, Andreas</i>	
Elastic Moduli Measurements at Elevated Temperatures using Ultrasonic Waveguide Embodiments	4709
<i>Periyannan, Suresh; Balasubramanian, Krishnan</i>	
Innovative Technologies for Ultrasonic Phased Array Instrumentation	4717
<i>Büchler, Johannes; Falter, Stephan</i>	
Research on Ultrasonic Inspection of the Narrow gap welds of the Main Coolant Line (MCL) in Chinese Evolutionary Pressurized Reactor (CEPR) Nuclear Power Plant	4718
<i>Zhou, Lipeng; Li, Ming; Chen, Huaidong; Ma, Guanbing; Wang, Weiqiang</i>	
An Improve Denosing Method for Defect Detection in TOFD Collected Data	4726
<i>Chi, Dazhao; Gang, Tie</i>	
Support Vector Machines Applied to the Identification of Carburized HP Steels Using Ultrasonic Non-Destructive Testing	4734
<i>Fagundes do Carmo, Carla Beatriz; Rodrigues, Lucas; Cruz, Fabio; Simas Filho, Eduardo; Albuquerque, Maria; Silva, Ivan; Farias, Cláudia</i>	
High Frequency Ultrasonic Systems with Frequency Ranges of 35 to 200 MHz	4741
<i>Hillger, Wolfgang; Bühling, Lutz; Ilse, Detlef</i>	
Study on Sectorial Scan Angle Range for Phased Array Ultrasonic Testing in Standard Setting	4749
<i>Jiang, Xueping; Han, Qingbang; Zheng, Hui; Tian, Guoliang; Wang, Peng</i>	
Determination of Crack Tip Location by using Tip Diffraction and Geometric Calculation	4755
<i>Kim, Young-Gil; Jo, Nam Sik; Yoon, Dong-Jin; Ahn, Bongyoung</i>	
Inspection of Hidden and Curved Regions in Composite Structures Using Non-contact Guided Ultrasonic Waves	4762
<i>Koodalil, Dileep; Balasubramanian, Krishnan</i>	
Customized Ultrasonic Inspection Solutions for Various Industrial Products	4769
<i>Britzger, Michael; Vogt, Göran; Vogt, Benita</i>	
Ultrasonic Inspection of Small Pores Within Electron Beam Welded Titanium Alloys and Their Influence on the Fatigue Properties	4774
<i>Liang, Jing; Sha, Zhengxiao; Shi, Yiwei</i>	
Application of Ultrasonic Methods for Manufacture of Pipelines and Maintenance	4783
<i>Mihovski, Mitko; Chukachev, Pavel; Mirchev, Yordan; Sergienko, Vladimir</i>	
Ultrasonic Testing for General Corrosion of Metals and Alloys	4790
<i>Mirchev, Yordan</i>	
Ultrasound Phased Array Imaging on Curved Surface for Weld Inspection of Elbow Pipe as a Replacement for Radiographic Inspection	4801
<i>Park, Choon-su; Park, Jin kyu; Choi, WonJae; Cho, Seunghyun; Moon, Eul seok; Huh, Mon joo</i>	
Ultrasound Degassing and Computed Tomography Quality Control	4809
<i>Pabel, Thomas; Petkov, Tose; Habe, Daniel; Schumacher, Peter</i>	
Evaluation of Adhesion of Concrete Screed to Mine Shaft Wall by Means of Nondestructive Acoustic Methods	4816
<i>Hola, Jerzy; Schabowicz, Krzysztof; Sadowski, Lukasz</i>	
On Determination of Focal Laws for Linear Phased Array Probes as to the Active and Passive Element Size	4823
<i>Gommlich, Andreas; Schubert, Frank</i>	
Operation and Sound Field of an Ultrasonic Biplane Array	4831
<i>Hipp, Raffael; Gommlich, Andreas; Joneit, Dieter; Schubert, Frank; Heuer, Henning</i>	
Laser Ultrasound Investigations on Composites with Optical Generation from Visible to Infrared	4838
<i>Seyrkammer, Robert; Zamiri, Saeid; Reitingner, Bernhard; Galos, Roland; Hofer, Christian; Burgholzer, Peter</i>	
The Progressive Statistical Analysis Results of Performance Demonstration for Piping Welds	4845
<i>Shyu, Hung-Fa; Liao, Yi-Ting</i>	
Studies of Metal-Rubber Suspension Components of a Motor Vehicle by Ultrasonic Method	4852
<i>Ulbrich, Dariusz; Kowalczyk, Jakub; Sawczuk, Wojciech; Kolodziejski, Sawomir; Selech, Jaroslaw</i>	
PROline – Ready for the Next Industrial Revolution (Industry 4.0) and SCADA	4859
<i>Vogt, Göran</i>	
A Wave Propagation Model for Simultaneous Determination of Thickness and Sound Velocity of Layered Structures	4865
<i>Wolf, Mario; Kümmitz, Sebastian; Kühnicke, Elfgard</i>	
PoD Analysis of Phased Array and Conventional Ultrasonic Techniques	4874
<i>Yalçin, Murat; Yelbay, Hasan Ilker; Gür, C. Hakan</i>	
Detection of Hydrothermal Aging in Cured-In-Place Pipes (CIPP) Based on Microwave System	4882
<i>Manavipour, Maryam; Sklarczyk, Christoph; Szielasko, Klaus; Kurz, Jochen H.; Boller, Christian</i>	
A Modelling Approach for Guided Wave Propagation in Coated and Buried Pipes	4889
<i>Duan, Wenbo; Dhutti, Anurag; Mohimi, Abbas; Mudge, Peter; Selcuk, Cem; Gan, Tat-Hean</i>	
Soil Saturation Detection from in Pipe Ultrasound Measurements	4897
<i>Collins, Richard; Zhu, Juanjuan; Mills, Robin; Boxall, Joby</i>	

Accuracy in Sizing Discontinuities with Phased Array Ultrasonic Technique	4906
<i>Nardoni, Giuseppe; Certo, M.; Nardoni, Pietro; Feroldi, Marco</i>	
Improved Inspection of CRA-Clad Pipe Welds with Accessible Advanced Ultrasonic Phased-Array Technology	4916
<i>Lamarre, André</i>	
Phase Array Ultrasonic Testing (PAUT) & Time of Flight Diffraction (TOFD) of DSS Piping of Very High Thickness (70 mm)	4923
<i>Khare, Alok; Mistry, Satish</i>	
Use of Sectorial Scanning for Anisotropic Weld Inspection	4930
<i>Dupont, Benoît; Rolland, Jean-Yves; Verdeil, Guy; Poirier, Jérôme</i>	
Defect Recognition and Strength Evaluation of Dissimilar Diffusion Bonding Based on Support Vector Machine	4937
<i>Luan, Yilin; Gang, Tie; Zhang, Chi</i>	
Maximized Reliability of Testing Results of Mixed Materials Weld, Through the Combination of Eddy Current Testing with Phased Array Ultrasonic Testing in the Confined Environment of Power Station Header Nipples	4947
<i>Hartman, Tyler; Keil, Jens; Carstensen, Uwe; Schmidt, Andreas</i>	
Automated Inspection of Welds with Limited Access by Use of Active Thermography with Laser Line Excitation	4954
<i>Runnemalm, Anna; Broberg, Patrik; Garcia De La Yedra, Aitor; Fuente, Raquel; Beizama, Ane Miren; Fernandez, Erik; Thorpe, Nigel; Henrikson</i>	
Author Index	