

Insight, Non-Destructive Testing and Condition Monitoring incorporating the European Journal of NDT formerly the British Journal of Non-Destructive Testing

ISSN: 1354-2575

VOLUME 62 2020 – INDEXES

Key to issues

No 1	January	1-60	No 7	July	381-448
No 2	February	61-116	No 8	August	449-512
No 3	March	117-176	No 9	September	513-572
No 4	April	177-248	No 10	October	573-624
No 5	May	249-312	No 11	November	625-684
No 6	June	313-380	No 12	December	685-744

REGULAR FEATURES AND SHORT TITLES

Comment	2, 62, 118, 178, 250, 314, 382, 450, 514, 574, 626, 686
Corporate Members	60, 116, 176, 248, 312, 380, 448, 512, 572, 624, 684, 744
Institute Awards	7, 520
Institute Notices	321
International Diary	46, 104, 163, 238, 300, 365, 433, 498, 559, 609, 669, 731
NDT Info	50, 107, 167, 241, 303, 369, 437, 502, 563, 614, 673, 735
Newsdesk	4, 64, 120, 181, 253, 317, 384, 453, 516, 576, 629, 689
Obituaries	
Bruce Arnold	320
Roger Lyon	66
Professor William McEwan	6
Product Showcase	57, 114, 174, 246, 310, 377, 445, 509, 570, 621, 681, 742
Special Features	
Condition Monitoring	449
Composites Inspection	313
The Energy Industries	513
Magnetic Methods	61
Non-Destructive Imaging and Microanalysis in Art & Cultural Heritage	117
Novel Applications	1
Optical and Thermal Methods	249
Steel Inspection	381
The Aerospace Industry	685
Ultrasonics	177, 625

AUTHOR INDEX

Aixi Zhu (with Yiming Zhu, Nizhuan Wang and Yingying Chen)	
<u>A robust self-driven surface crack detection algorithm using local features</u>	269
Alleyne D (see Pialucha T)	642
Anandika R (with Lundberg J and Stenström C)	
<u>Phased array ultrasonic inspection of near-surface cracks in a railhead and its verification with rail slicing</u>	387
Arora V (with Mulaveesala R, Dua G and Sharma A)	
<u>Thermal non-destructive testing and evaluation for subsurface slag detection: numerical modelling</u>	264
Banerjee S (see Das D)	633
Baradarani A (see Maev R Gr)	134
Basak D (with Waghmare S)	
<u>Comparative study of 36 mm-diameter rope in five aerial ropeway installations using a non-destructive method</u>	598
Bhende A R	
<u>Dynamic balancing of a two-plane rotor without phase angle measurement using the amplitude subtraction method</u>	42
Bibby H (with Hinsley J)	
<u>Magnetic particle inspection and EMF Directive 2013/35/EU</u>	69
Bilen S (see Tian Jie)	600
Bin Wu (see Mingzhi Li)	331
Binghua Cao (see Zhian Xue)	27
Bouri D (see Das D)	633

Carboni M (with Collina A and Zappa E)	
<u>An acoustic emission-based approach to structural health monitoring of pre-stressed concrete railway sleepers</u>	280
Cawley P (see Pialucha T)	642
Chandel R (see Ranga C)	222
Changdong Wu	
<u>Classification of catenary equipment based on a coupled genetic algorithm-extreme learning machine method</u>	15
Charlton P (see Hoyle C)	199
Charlton P C (see Pullen A L)	73
Chatterjee S (see Das D)	633
Cheilakou E (see Sfarra S)	144
Chen Hongfang (see Sun Yanqiang)	34
Chih-Hsin Hu (see Sheng-Hsiung Hsieh)	192
Chuanglong Wang (see Meixian Wu)	402
Chugunova K S (see Kossolapov A J)	139
Chung-Yue Wang (see Sheng-Hsiung Hsieh)	192
Collina A (see Carboni M)	280
Cowan B (see Mineo C)	338
Cross E J (see Mineo C)	338
Cunfu He (see Mingzhi Li)	331
Das D (with Debbarma S R, Bouri D, Banerjee S and Chatterjee S)	
<u>Assessment of a cracked reinforced concrete supporting structure for a converter in a steel melting shop through non-destructive testing and a statistical approach – a case study</u>	633
Davi S (with Mineo C, MacLeod C, Pierce S G, Gachagan A, Paton S, Munro G, O'Brien-O'Reilly J and McCubbin C)	
<u>Correction of B-scan distortion for optimum ultrasonic imaging of backwalls with complex geometries</u>	184
Debbarma S R (see Das D)	633
Dong Li (with Zhi-Chao Lai, Ying Wang and Zhou-Lian Zheng)	
<u>A non-contact method for estimating the pre-tension of a rectangular membrane structure</u>	464
Dongdong Wen (see Zhian Xue)	27
Dongdong Ye (see Haiting Zhou)	11
Dongli Zhang (see Meixian Wu)	402
Dongqin Fan (see Xiaoni Dong)	232
Dua G (see Arora V)	264

Fan I-S (see Lafiosca P)	692	Hua Gang (see Wang Hongyao)	540
Fangji Gan (see Wenyang Li)	555	Hui Xing (see Weiguo Di)	588
Feng Jiang (with Shulin Liu, Shaojie Xin and Hongli Zhang) <u>Evaluation of circumferential cracks in metal tubes based on a magnetic field response model of eddy current testing</u>	91	Hui Zhang (see Haiyan Zhang)	216
Foster E (see Lines D I)	526	Ibarra-Castanedo C (see Hai Zhang)	123
Fuchen Zhang (with Hongmei Li and Ruiqing Jia) <u>Mechanical effect on electrical conductivity of magnetic materials</u>	584	Ibarra-Castanedo C (see Sfarra S)	144
Fuentes R (see Mineo C)	338	Ingram M (with Gachagan A, Nordon A, Mulholland A J and Hegarty M) <u>Calibration of ultrasonic hardware for enhanced total focusing method imaging</u>	408
Gachagan A (see Davi S)	184	Javadi Y (see Lines D I)	526
Gachagan A (see Ingram M)	408	Jianchun Fan (see Wei Zhou)	292
Gachagan A (see Lines D I)	526	Jianjun Chen (see Haiting Zhou)	11
Gao Maosheng (see Shang Zhiwu)	457	Jianxian Cai (see Li Hong)	428
Geng L (see Xiao Z T)	323	Jie Gu (see Yan Wang)	471
Gongtian Shen (with Junjiao Zhang and Lackner G) <u>International acoustic emission standard analysis and development outlook</u>	724	Jie Tian (with Pu-Fan Zhu, Yang-Yang Wang and Hong-Fei Guo) <u>Experimental study and application of magnetic bridge double-loop main flux detection method</u>	98
Guang Han (see Weiguo Di)	588	Jihao Wu (see Xiang Guan)	702
Guangrui Wen (see Xiaoni Dong)	232	Jin Lu (see Xiaxia Zhao)	256
Guo Y M (see Xiao Z T)	323	Jin Shang (see Xiang Guan)	702
Guofeng Wang (see Kai Yang)	484	JinZhong Chen (see YiLai Ma)	550
Guoming Chen (see Hong'an Wang)	86	Jun Tu (see Xu Zhang)	494
Guopeng Fan (see Haiyan Zhang)	216	Jun You (with Yunxin Wu and Hai Gong) <u>A study on Al 2219 alloy precipitate growth rates by non-linear ultrasonic technique</u>	656
Guopeng Fan (see Wenfa Zhu)	208	Junjiao Zhang (see Gongtian Shen)	724
Hai Gong (see Jun You)	656	Junqi Gao (with Lingsi Sun, Shuxiang Zhao and Ying Shen) <u>Enhanced ACFM detection performance by multi-parameter synergy analysis</u>	81
Hai Zhang (with Sfarra S, Osman A, Ibarra-Castanedo C and Maldague X P V) <u>Using through-transmission mid-wave infrared vision and air-coupled ultrasound for artwork inspection: a case study on mock-ups of <i>Portrait of the Painter's Mother</i></u>	123	Junyi Chen (see Xiang Guan)	702
Haiting Zhou (with Dongdong Ye, Jianjun Chen, Qiang Wang and Xinwei Fan) <u>Discussion on the characterisation of hydrogen embrittlement based on eddy current signals</u>	11	Kai Yang (with Guofeng Wang and Kaile Ma) <u>Chatter prediction based on operational modal analysis and an adaptive complex Morlet filter</u>	484
Haiyan Zhang (with Mintao Shao, Guopeng Fan, Hui Zhang and Wenfa Zhu) <u>Detection of near-surface defects in rails combining Green's function retrieval of ultrasonic diffuse fields and sign coherence factor imaging</u>	216	Kaile Ma (see Kai Yang)	484
Haiyan Zhang (see Wenfa Zhu)	208	Kaleli T (with Hakan Gür C) <u>Determination of surface residual stresses in carburised AISI 8620 steel by the magnetic Barkhausen noise method</u>	416
Hakan Gür C (see Kaleli T)	416	Kaur K (with Sharma A, Rani A, Kher V and Mulaveesala R) <u>Physical insights into principal component thermography</u>	277
Hegarty H (see Ingram M)	408	Kher V (see Kaur K)	277
Helsin Wang (see Sheng-Hsiung Hsieh)	192	Kossolapov A J (with Chugunova K S) <u>Residual stress in struck and cast coins</u>	139
Herl G (see Stock A M)	345	Koui M (see Sfarra S)	144
Hiller J (see Stock A M)	345	Kowalik Z (see Tytko G)	718
Hinsley J (see Bibby H)	69	Kumar A (see Ranga C)	222
Hong'an Wang (with Guoming Chen) <u>Defect size estimation method for magnetic flux leakage signals using convolutional neural networks</u>	86	Lackner G (see Gongtian Shen)	724
Hong-Fei Guo (see Jie Tian)	98	Lafiosca (with Fan I-S) <u>Review of non-contact methods for automated aircraft inspections</u>	692
Hongli Zhang (see Feng Jiang)	91	Li Hong (with Jianxian Cai, Yanxiong Wu, Zhenjing Yao, Zhongchao Qiu and Yuntian Teng) <u>A method for quantitative identification of magnetic flux leakage of fatigue cracks in ferromagnetic components</u>	428
Hongmei Li (see Fuchen Zhang)	584	Li Wanxiang (see Shang Zhiwu)	457
Hongming Zhou (with Peiyuan Li, Longfei Wu and Qiankun Gao) <u>A wavelet analysis-based matching pursuit algorithm for an accurate ultrasonic TOFD measurement</u>	662	Liang C W (see Watson J M)	396
Hosseini-Ashrafi M E (see Yahaghi E)	352	Lijun Chen (see Yan Wang)	471
Hoyle C (with Sutcliffe M, Charlton P, Mosey S and Weston M) <u>Ultrasonic algorithms for calculating probe separation distance, combined with full matrix capture with the total focusing method</u>	199	Lines D I (with Javadi Y, Mohseni E, Vasilev M, MacLeod C N, Mineo C, Vithanage R W, Qiu Z, Zimmermann R, Loukas C, Foster E, Pierce S G and Gachagan A) <u>A flexible robotic cell for in-process inspection of multi-pass welds</u>	526

Lingsi Sun (see Junqi Gao).....	81	Nordon A (see Ingram M).....	408
Lithgow K <u>Delivering the National Trust's preservation purpose: mission, strategy and structure</u>	152	O'Brien-O'Reilly J (see Davi S).....	184
Liu Xia (see Shang Zhiwu).....	457	Osman A (see Hai Zhang).....	123
Liu Y B (see Xiao Z T).....	323	Papaclias M (see Xing Meng).....	478
Longfei Wu (see Hongming Zhou).....	662	Parfenov V A <u>Use of laser technologies for restoration, documentation and replication of sculptural monuments in Saint Petersburg</u>	129
Loukas C (see Lines D I).....	526	Paton S (see Davi S).....	184
Lundberg J (see Anandika R).....	387	Pavlakovic B (see Pialucha T).....	642
Lunhong Liu (see Wei Zhao).....	422	Pearson N R (see Pullen A L).....	73
MacLeod C (see Davi S).....	184	Peiyuan Li (see Hongming Zhou).....	662
MacLeod C N (see Lines D I).....	526	Pialucha T (with Pavlakovic B, Alleyne D and Cawley P) <u>Quantitative measurement of remnant thickness in corrosion under pipe supports</u>	642
MacLeod C N (see Mineo C).....	338	Pierce S G (see Davi S).....	184
Maev R Gr (with Baradarani A and Taylor J R B) <u>New concept for art and antiquities identification based on craquelure pattern analysis</u>	134	Pierce S G (see Lines D I).....	526
Mahadevan S (see Saravanan T).....	579	Pierce S G (see Mineo C).....	338
Mahmoud H (with Mazal P and Vlašić F) <u>Detecting pneumatic actuator leakage using acoustic emission monitoring</u>	22	Pu-Fan Zhu (see Jie Tian).....	98
Maldague X (see Sfarra S).....	144	Pullen A L (with Charlton P C, Pearson N R and Whitehead N J) <u>Practical evaluation of velocity effects on the magnetic flux leakage technique for storage tank inspection</u>	73
Maldague X P V (see Hai Zhang).....	123	Qiang Wang (see Haiting Zhou).....	11
Mazal P (see Mahmoud H).....	22	Qiankun Gao (see Hongming Zhou).....	662
McCubbin C (see Davi S).....	184	Qing Li (see Xiang Guan).....	702
Meixian Wu (with Dongli Zhang and Chuanglong Wang) <u>A new eddy current probe with deep penetrating field trajectories for the inspection of deep cracks in metal materials</u>	402	Qiu Z (see Lines D I).....	526
Melton G (see Xing Meng).....	478	Ranga C (with Kumar A and Chandel R) <u>Influence of electrical and thermal ageing on the mineral insulating oil performance for power transformer applications</u>	222
Meng Guoying (see Tian Jie).....	600	Rani A (see Kaur K).....	277
Meng Guoying (see Wang Hongyao).....	540	RenBi He (see YiLai Ma).....	550
Mengbao Fan (see Zhian Xue).....	27	RenYang He (see YiLai Ma).....	550
Mineo C (see Davi S).....	184	Rong Mo (see Xiaxia Zhao).....	256
Mineo C (see Lines D I).....	526	Ruiqing Jia (see Fuchen Zhang).....	584
Mineo C (with Vasilev M, Cowan B, MacLeod C N, Pierce S G, Wong C, Yang E, Fuentes R and Cross E J) <u>Enabling robotic adaptive behaviour capabilities for new Industry 4.0 automated quality inspection paradigms</u>	338	Saravanan T (with Mahadevan S and Mukhopadhyay C K) <u>An improved quality assessment of fuel pin end plug welds using digital X-ray radiography</u>	579
Mingming Wang (see Weiguao Di).....	588	Sauer T (see Stock A M).....	345
Mingzhi Li (with Bin Wu, Xiucheng Liu and Cunfu He) <u>Highly non-linear solitary wave imaging method for detecting cylindrical defects in the metal plate of an adhesive composite metal structure</u>	331	Sexton J (see Watson J M).....	396
Mintao Shao (see Haiyan Zhang).....	216	Sfarra S (with Cheilakou E, Theodorakeas P, Ibarra-Castaneda C, Zhang H, Koui M and Maldague X) <u>Inspecting historical vaulted ceilings by means of physical and chemical analyses: an integrated approach combining active infrared thermography and reflectance spectroscopy</u>	144
Missous M (see Watson J M).....	396	Sfarra S (see Hai Zhang).....	123
Mohseni E (see Lines D I).....	526	Shang Zhiwu (with Liu Xia, Li Wanxiang, Gao Maosheng and Yu Yan) <u>A rolling bearing fault diagnosis method based on fastDTW and an AGBDBN</u>	457
Mosey S (see Hoyle C).....	199	Shao Wei (see Wenfa Zhu).....	208
Mukhopadhyay C K (see Saravanan T).....	579	Shaojie Xin (see Feng Jiang).....	91
Mukhopadhyay C K (see Sharatchandra Singh W).....	649	Sharatchandra Singh W (with Mukhopadhyay C K) <u>Detection of localised flaws in small-diameter carbon steel tubes using multi-NDE techniques</u>	649
Mulaveesala R (see Arora V).....	264	Sharma A (see Arora V).....	264
Mulaveesala R (see Kaur K).....	277	Sharma A (see Kaur K).....	277
Mulholland A J (see Ingram M).....	408	Sheng Feng (see Xu Zhang).....	494
Munro G (see Davi S).....	184		
Na Wang (see Yan Wang).....	471		
Nizhuan Wang (see Aixi Zhu).....	269		

Sheng-Hsiung Hsieh (with Helsin Wang, Chih-Hsin Hu and Chung-Yue Wang) <u>Ultrasonic velocity tomography for inspecting the condition of a bridge pylon</u>	192	Wenyang Li (with Shiping Zhao and Fangji Gan) <u>Characterisation of backwall crack depth using the pulsed potential drop method</u>	555
Shi Zhaoyao (see Sun Yanqiang)	34	Weston M (see Hoyle C)	199
Shiping Zhao (see Wenyang Li)	555	Whitehead N J (see Pullen A L)	73
Shujie Liu (see Wei Zhou)	292	Wong C (see Mineo C)	338
Shulin Liu (see Feng Jiang)	91	Wu J (see Xiao Z T)	323
Shuting Wang (see Wei Zhao)	422	Wu Xinli (see Tian Jie)	600
Shuxiang Zhao (see Junqi Gao)	81	Xiang Guan (with Jin Shang, Yincai Zou, Xing Bian, Junyi Chen, Jihao Wu and Qing Li) <u>Design and experimental study of a mutual inductance displacement sensor for active magnetic bearings</u>	702
Stenström C (see Anandika R)	387	Xiangyuan Liu (see Wei Zhou)	292
Stock A M (with Herl G, Sauer T and Hiller J) <u>Edge-preserving compression of CT scans using wavelets</u>	345	Xiao Z T (with Guo Y M, Geng L, Wu J, Zhang F, Wang W and Liu Y B) <u>Analysis of internal defects in 3D braided composites based on ultrasonic C-scan technique</u>	323
Sun Yanqiang (with Chen Hongfang, Shi Zhaoyao and Tang Liang) <u>A novel bevel gear fault diagnosis method based on ensemble empirical mode decomposition and support vector machines</u>	34	Xiaochun Song (see Xu Zhang)	494
Sutcliffe M (see Hoyle C)	199	Xiaodong Zhang (see Xiaoni Dong)	232
Tang Liang (see Sun Yanqiang)	34	Xiaoni Dong (with Dongqin Fan, Guangrui Wen, Xiaodong Zhang and Zhifen Zhang) <u>A new gearbox compound fault recognition approach based on improved double wavelet packet transform</u>	232
Tao Meng (see YiLai Ma)	550	Xiaoyun Sun (see Weiguo Di)	588
Taylor J R B (see Maev R Gr)	134	Xiaxia Zhao (with Rong Mo, Zhiyong Chang and Jin Lu) <u>A gamma correction method based on constant-intensity images in phase-measuring profilometry</u>	256
Theodorakeas P (see Sfarra S)	144	Xin Li (see Ye Wang)	710
Tian Jie (see Wang Hongyao)	540	Xing Bian (see Xiang Guan)	702
Tian Jie (with Wang Hongyao, Meng Guoying, Bilen S and Wu Xinli) <u>Novel method of data compression for the online detection signal of coal mine wire rope</u>	600	Xing Meng (with Papaalias M and Melton G) <u>Spectral analysis for crack detection during TIG welding using acoustic emission techniques</u>	478
Twytle J <u>New methods for art object conservation and restoration – practical experience in the field: the experience of The True Image Solution Ltd</u>	160	Xinhua Wang (with Yaping Gu, Yingchun Chen, Zia Ullah and Yizhen Zhao) <u>Research on a damage identification method of harmonic magnetic field detection in steel pipes with cladding</u>	533
Tytko G (with Kowalik Z) <u>An analytical solution to the problem of a cup-cored coil located over a conducting plate with a hole</u>	718	Xinwei Fan (see Haiting Zhou)	11
Vasilev M (see Lines D I)	526	Xiucheng Liu (see Mingzhi Li)	331
Vasilev M (see Mineo C)	338	Xu Zhang (with Sheng Feng, Jun Tu and Xiaochun Song) <u>An improved design of shear horizontal guided wave electromagnetic acoustic transducer</u>	494
Vithanage R W (see Lines D I)	526	Yahaghi E (with Hosseini-Ashrafi M E) <u>Comparison of the performance of three domain transform filters for radiographic contrast enhancement of welded objects</u>	352
Vlašić F (see Mahmoud H)	22	Yan Wang (with Lijun Chen, Na Wang, Jie Gu and Zhaozhu Wang) <u>Three-dimensional acoustic emission source localisation in concrete based on sparse least-squares support vector regression</u>	471
Waghmare S (see Basak D)	598	Yang E (see Mineo C)	338
Wang H <u>A simple approach to determine pile lengths using flexural wave frequency spectrum information</u>	357	Yang-Yang Wang (see Jie Tian)	98
Wang Hongyao (see Tian Jie)	600	Yang Zhang (see Ye Wang)	710
Wang Hongyao (with Tian Jie, Meng Guoying, Zhou Junying and Hua Gang) <u>Multi-loop magnetisation method for detecting coal mine wire rope defects</u>	540	Yanxiong Wu (see Li Hong)	428
Wang W (see Xiao Z T)	323	Yaozhong Li (see Wei Zhao)	422
Watson J M (with Liang C W, Sexton J and Missous M) <u>Magnetic field frequency optimisation for MFL imaging using QWHE sensors</u>	396	Yaping Gu (see Xinhua Wang)	533
Wei Zhou (with Jianchun Fan, Xiangyuan Liu and Shujie Liu) <u>Quantitative research of defects for pipelines based on metal magnetic memory testing</u>	292	Ye Wang (with Zhixiong Chen, Yang Zhang, Xin Li and Zhixiong Li) <u>Remaining useful life prediction of rolling bearings based on the three-parameter Weibull distribution proportional hazards model</u>	710
Wei Zhao (with Shuting Wang, Yaozhong Li and Lunhong Liu) <u>A concise and accurate model for the magnetomechanical effect</u>	422	YiLai Ma (with JinZhong Chen, RenBi He, Tao Meng and RenYang He) <u>Research on pipeline internal stress detection technology based on the Barkhausen effect</u>	550
Weiguo Di (with Mingming Wang, Xiaoyun Sun, Guang Han and Hui Xing) <u>Identification of bolt anchorage defects based on Elman neural network optimised by improved chicken swarm optimisation algorithm</u>	588	Yiming Zhu (see Aixi Zhu)	269
Wenfā Zhu (see Haiyan Zhang)	216	Yincai Zou (see Xiang Guan)	702
Wenfā Zhu (with Yujie Zhang, Guopeng Fan, Haiyan Zhang and Shao Wei) <u>Time-domain topological energy imaging with ultrasonic Lamb waves considering multiple defects</u>	208	Ying Shen (see Junqi Gao)	81

Ying Wang (see Dong Li)	464
Yingchun Chen (see Xinhua Wang)	533
Yingying Chen (see Aixi Zhu)	269
Yizhen Zhao (see Xinhua Wang)	533
Yu Yan (see Shang Zhiwu)	457
Yujie Zhang (see Wenfa Zhu)	208
Yuntian Teng (see Li Hong)	428
Yunxin Wu (see Jun You)	656
Zappa E (see Carboni M)	280
Zhang F (see Xiao Z T)	323
Zhang H (see Sfarra S)	144
Zhaozhu Wang (see Yan Wang)	471
Zhenjing Yao (see Li Hong)	428
Zhi-Chao Lai (see Dong Li)	464
Zhian Xue (with Mengbao Fan, Binghua Cao and Dongdong Wen) <u>A fast numerical method for the analytical model of pulsed eddy current for pipelines</u>	27
Zhifeng Zhang (see Xiaoni Dong)	232
Zhixiong Chen (see Ye Wang)	710
Zhixiong Li (see Ye Wang)	710
Zhiyong Chang (see Xiaxia Zhao)	256
Zhongchao Qiu (see Li Hong)	428
Zhou Junying (see Wang Hongyao)	540
Zhou-Lian Zheng (see Dong Li)	464
Zia Ullah (see Xinhua Wang)	533
Zimmermann R (see Lines D I)	526

SUBJECT INDEX

ACOUSTIC EMISSION METHODS

<u>Detecting pneumatic actuator leakage using acoustic emission monitoring,</u> <i>by H Mahmoud, P Mazal and F Vlašić</i>	22
<u>An acoustic emission-based approach to structural health monitoring of pre-stressed concrete railway sleepers,</u> <i>by M Carboni, A Collina and E Zappa</i>	280
<u>Three-dimensional acoustic emission source localisation in concrete based on sparse least-squares support vector regression,</u> <i>by Yan Wang, Lijun Chen, Na Wang, Jie Gu and Zhaozhu Wang</i>	471
<u>Spectral analysis for crack detection during TIG welding using acoustic emission techniques,</u> <i>by Xing Meng, M Papaelias and G Melton</i>	478

COMPUTED TOMOGRAPHY

<u>Edge-preserving compression of CT scans using wavelets,</u> <i>by A M Stock, G Herl, T Sauer and J Hiller</i>	345
---	-----

CONDITION MONITORING AND SHM

<u>A novel bevel gear fault diagnosis method based on ensemble empirical mode decomposition and support vector machines,</u> <i>by Sun Yanqiang, Chen Hongfang, Shi Zhaoqiao and Tang Liang</i>	34
<u>Dynamic balancing of a two-plane rotor without phase angle measurement using the amplitude subtraction method,</u> <i>by A R Bhende</i>	42
<u>Influence of electrical and thermal ageing on the mineral insulating oil performance for power transformer applications,</u> <i>by C Ranga, A Kumar and R Chandel</i>	222

<u>A new gearbox compound fault recognition approach based on improved double wavelet packet transform,</u> <i>by Xiaoni Dong, Dongqin Fan, Guangrui Wen, Xiaodong Zhang and Zhifen Zhang</i>	232
--	-----

<u>A gamma correction method based on constant-intensity images in phase-measuring profilometry,</u> <i>by Xiaxia Zhao, Rong Mo, Zhiyong Chang and Jin Lu</i>	256
--	-----

<u>A rolling bearing fault diagnosis method based on fastDTW and an AGBDBN,</u> <i>by Shang Zhiwu, Liu Xia, Li Wanxiang, Gao Maosheng and Yu Yan</i>	457
---	-----

<u>A non-contact method for estimating the pre-tension of a rectangular membrane structure,</u> <i>by Dong Li, Zhi-Chao Lai, Ying Wang and Zhou-Lian Zheng</i>	464
---	-----

<u>Chatter prediction based on operational modal analysis and an adaptive complex Morlet filter,</u> <i>by Kai Yang, Guofeng Wang and Kaile Ma</i>	484
---	-----

<u>Remaining useful life prediction of rolling bearings based on the three-parameter Weibull distribution proportional hazards model,</u> <i>by Ye Wang, Zhixiong Chen, Yang Zhang, Xin Li and Zhixiong Li</i>	710
---	-----

EDDY CURRENT

<u>Discussion on the characterisation of hydrogen embrittlement based on eddy current signals,</u> <i>by Haiting Zhou, Dongdong Ye, Jianjun Chen, Qiang Wang and Xinwei Fan</i>	11
--	----

<u>A fast numerical method for the analytical model of pulsed eddy current for pipelines,</u> <i>by Zhian Xue, Mengbao Fan, Binghua Cao and Dongdong Wen</i>	27
---	----

<u>Evaluation of circumferential cracks in metal tubes based on a magnetic field response model of eddy current testing,</u> <i>by Feng Jiang, Shulin Liu, Shaojie Xin and Hongli Zhang</i>	91
--	----

<u>A new eddy current probe with deep penetrating field trajectories for the inspection of deep cracks in metal materials,</u> <i>by Meixian Wu, Dongli Zhang and Chuanglong Wang</i>	402
--	-----

<u>An analytical solution to the problem of a cup-cored coil located over a conducting plate with a hole,</u> <i>by G Tytko and Z Kowalik</i>	718
--	-----

ELECTRICAL METHODS

<u>Characterisation of backwall crack depth using the pulsed potential drop method,</u> <i>by Wenyang Li, Shiping Zhao and Fangji Gan</i>	555
--	-----

ELECTROMAGNETIC AND MAGNETIC METHODS

<u>Practical evaluation of velocity effects on the magnetic flux leakage technique for storage tank inspection,</u> <i>by A L Pullen, P C Charlton, N R Pearson and N J Whitehead</i>	73
--	----

<u>Enhanced ACFM detection performance by multi-parameter synergy analysis,</u> <i>by Junqi Gao, Lingsi Sun, Shuxiang Zhao and Ying Shen</i>	81
---	----

<u>Defect size estimation method for magnetic flux leakage signals using convolutional neural networks,</u> <i>by Hong'an Wang and Guoming Chen</i>	86
--	----

<u>Experimental study and application of magnetic bridge double-loop main flux detection method,</u> <i>by Jie Tian, Pu-Fan Zhu, Yang-Yang Wang and Hong-Fei Guo</i>	98
---	----

<u>Quantitative research of defects for pipelines based on metal magnetic memory testing,</u> <i>by Wei Zhou, Jianchun Fan, Xiangyuan Liu and Shujie Liu</i>	292
---	-----

<u>Magnetic field frequency optimisation for MFL imaging using QWHE sensors,</u> <i>by J M Watson, C W Liang, J Sexton and M Missous</i>	396
---	-----

<u>Determination of surface residual stresses in carburised AISI 8620 steel by the magnetic Barkhausen noise method,</u> <i>by T Kaleli and C Hakan Gür</i>	416
--	-----

<u>A concise and accurate model for the magnetomechanical effect,</u> <i>by Wei Zhao, Shuting Wang, Yaozhong Li and Lunhong Liu</i>	422
--	-----

<u>A method for quantitative identification of magnetic flux leakage of fatigue cracks in ferromagnetic components,</u> <i>by Li Hong, Jianxian Cai, Yanxiong Wu, Zhenjing Yao, Zhongchao Qiu and Yuntian Teng</i>	428
---	-----

<u>Research on a damage identification method of harmonic magnetic field detection in steel pipes with cladding,</u> <i>by Xinhua Wang, Yaping Gu, Yingchun Chen, Zia Ullah and Yizhen Zhao</i>	533
<u>Multi-loop magnetisation method for detecting coal mine wire rope defects,</u> <i>by Wang Hongyao, Tian Jie, Meng Guoying, Zhou Junying and Hua Gang</i>	540
<u>Research on pipeline internal stress detection technology based on the Barkhausen effect,</u> <i>by YiLai Ma, JinZhong Chen, RenBi He, Tao Meng and RenYang He</i>	550
<u>Mechanical effect on electrical conductivity of magnetic materials,</u> <i>by Fuchen Zhang, Hongmei Li and Ruiqing Jia</i>	584
<u>Comparative study of 36 mm-diameter rope in five aerial ropeway installations using a non-destructive method,</u> <i>by D Basak and S Waghmare</i>	598
<u>Design and experimental study of a mutual inductance displacement sensor for active magnetic bearings,</u> <i>by Xiang Guan, Jin Shang, Yincui Zou, Xing Bian, Junyi Chen, Jihao Wu and Qing Li</i>	702
GENERAL AND REVIEWS	
<u>Magnetic particle inspection and EMF Directive 2013/35/EU,</u> <i>by H Bibby and J Hinsley</i>	69
<u>Use of laser technologies for restoration, documentation and replication of sculptural monuments in Saint Petersburg,</u> <i>by V A Parfenov</i>	129
<u>Delivering the National Trust's preservation purpose: mission, strategy and structure,</u> <i>by K Lithgow</i>	152
<u>New methods for art object conservation and restoration – practical experience in the field: the experience of The True Image Solution Ltd,</u> <i>by J Twyde</i>	160
<u>Assessment of a cracked reinforced concrete supporting structure for a converter in a steel melting shop through non-destructive testing and a statistical approach – a case study,</u> <i>by D Das, S R Debbarma, D Bouri, S Banerjee and S Chatterjee</i>	633
<u>Detection of localised flaws in small-diameter carbon steel tubes using multi-NDE techniques,</u> <i>by W Sharatchandra Singh and C K Mukhopadhyay</i>	649
<u>Review of non-contact methods for automated aircraft inspections,</u> <i>by P Lafiosca and I-S Fan</i>	692
<u>International acoustic emission standard analysis and development outlook,</u> <i>by Gongtian Shen, Junjiao Zhang and G Lackner</i>	724
IMAGE, SIGNAL AND DATA PROCESSING	
<u>Classification of catenary equipment based on a coupled genetic algorithm-extreme learning machine method,</u> <i>by Changdong Wu</i>	15
<u>Using through-transmission mid-wave infrared vision and air-coupled ultrasound for artwork inspection: a case study on mock-ups of Portrait of the Painter's Mother,</u> <i>by Hai Zhang, S Sfarra, A Osman, C Ibarra-Castanedo and X P V Maldague</i>	123
<u>New concept for art and antiquities identification based on craquelure pattern analysis,</u> <i>by R Gr Maev, A Baradarani and J R B Taylor</i>	134
<u>Identification of bolt anchorage defects based on Elman neural network optimised by improved chicken swarm optimisation algorithm,</u> <i>by Weiguo Di, Mingming Wang, Xiaoyun Sun, Guang Han and Hui Xing</i>	588
<u>Novel method of data compression for the online detection signal of coal mine wire rope,</u> <i>by Tian Jie, Wang Hongyao, Meng Guoying, S Bilan and Wu Xinli</i>	600
INDUSTRY 4.0	
<u>Enabling robotic adaptive behaviour capabilities for new Industry 4.0 automated quality inspection paradigms,</u> <i>by C Mineo, M Vasilev, B Cowan, C N MacLeod, S G Pierce, C Wong, E Yang, R Fuentes and E J Cross</i>	338
OPTICAL METHODS	
<u>A robust self-driven surface crack detection algorithm using local features,</u> <i>by Aixi Zhu, Yiming Zhu, Nizhuan Wang and Yingying Chen</i>	269

RADIOGRAPHY including DIGITAL RADIOGRAPHY	
<u>Residual stress in struck and cast coins,</u> <i>by A J Kossolapov and K S Chugunova</i>	139
<u>Comparison of the performance of three domain transform filters for radiographic contrast enhancement of welded objects,</u> <i>by E Yahaghi and M E Hosseini-Ashrafi</i>	352
<u>An improved quality assessment of fuel pin end plug welds using digital X-ray radiography,</u> <i>by T Saravanan, S Mahadevan and C K Mukhopadhyay</i>	579
THERMOGRAPHY AND THERMAL METHODS	
<u>Inspecting historical vaulted ceilings by means of physical and chemical analyses: an integrated approach combining active infrared thermography and reflectance spectroscopy,</u> <i>by S Sfarra, E Cheilakou, P Theodorakeas, C Ibarra-Castanedo, H Zhang, M Kouli and X Maldague</i>	144
<u>Thermal non-destructive testing and evaluation for subsurface slag detection: numerical modelling,</u> <i>by V Arora, R Mulaveesala, G Dua and A Sharma</i>	264
<u>Physical insights into principal component thermography,</u> <i>by K Kaur, A Sharma, A Rani, V Kher and R Mulaveesala</i>	277
ULTRASONIC AND ACOUSTIC METHODS	
<u>Correction of B-scan distortion for optimum ultrasonic imaging of backwalls with complex geometries,</u> <i>by S Davi, C Mineo, C MacLeod, S G Pierce, A Gachagan, S Paton, G Munro, J O'Brien-O'Reilly and C McCubbin</i>	184
<u>Ultrasonic velocity tomography for inspecting the condition of a bridge pylon,</u> <i>by Sheng-Hsiung Hsieh, Helsin Wang, Chih-Hsin Hu and Chung-Yue Wang</i>	192
<u>Ultrasonic algorithms for calculating probe separation distance combined with full matrix capture with the total focusing method,</u> <i>by C Hoyle, M Sutcliffe, P Charlton, S Mosey and M Weston</i>	199
<u>Time-domain topological energy imaging with ultrasonic Lamb waves considering multiple defects,</u> <i>by Wenfa Zhu, Yujie Zhang, Guopeng Fan, Haiyan Zhang and Shao Wei</i>	208
<u>Detection of near-surface defects in rails combining Green's function retrieval of ultrasonic diffuse fields and sign coherence factor imaging,</u> <i>by Haiyan Zhang, Mintao Shao, Guopeng Fan, Hui Zhang and Wenfa Zhu</i>	216
<u>Analysis of internal defects in 3D braided composites based on ultrasonic C-scan technique,</u> <i>by Z T Xiao, Y M Guo, L Geng, J Wu, F Zhang, W Wang and Y B Liu</i>	323
<u>Highly non-linear solitary wave imaging method for detecting cylindrical defects in the metal plate of an adhesive composite metal structure,</u> <i>by Mingzhi Li, Bin Wu, Xiucheng Liu and Cunfu He</i>	331
<u>A simple approach to determine pile lengths using flexural wave frequency spectrum information,</u> <i>by H Wang</i>	357
<u>Phased array ultrasonic inspection of near-surface cracks in a railroad and its verification with rail slicing,</u> <i>by R Anandika, J Lundberg and C Stenström</i>	387
<u>Calibration of ultrasonic hardware for enhanced total focusing method imaging,</u> <i>by M Ingram, A Gachagan, A Nordon, A J Mulholland and M Hegarty</i>	408
<u>An improved design of shear horizontal guided wave electromagnetic acoustic transducer,</u> <i>by Xu Zhang, Sheng Feng, Jun Tu and Xiaochun Song</i>	494
<u>A flexible robotic cell for in-process inspection of multi-pass welds,</u> <i>by D I Lines, Y Javadi, E Mohseni, M Vasilev, C N MacLeod, C Mineo, R W Vithanage, Z Qiu, R Zimmermann, C Loukas, E Foster, S G Pierce and A Gachagan</i>	526
<u>Quantitative measurement of remnant thickness in corrosion under pipe supports,</u> <i>by T Pialucha, B Pavlakovic, D Alleyne and P Cawley</i>	642
<u>A study on Al 2219 alloy precipitate growth rates by non-linear ultrasonic technique,</u> <i>by Jun You, Yunxin Wu and Hai Gong</i>	656
<u>A wavelet analysis-based matching pursuit algorithm for an accurate ultrasonic TOFD measurement,</u> <i>by Hongming Zhou, Peiyuan Li, Longfei Wu and Qiankun Gao</i>	662

Guidelines for authors submitting technical articles to Insight – Non-Destructive Testing & Condition Monitoring (The Journal of the British Institute of Non-Destructive Testing)

Editorial Policy

The editorial policy of the Journal ensures that each issue contains matter that is highly relevant to a wide range of readers, including engineers, technicians, academics and scientists, appealing to practitioners and young graduates alike.

The Institute invites contributions of quality and originality that will interest the readership of the Journal. Technical papers submitted are peer-reviewed by at least two referees. The decision to publish rests solely with the Technical Committee.

Copyright

Authors of papers accepted for publication are requested to assign copyright to the British Institute of Non-Destructive Testing.

Full responsibility for the paper rests with the author(s), who, where appropriate, must have obtained permission to publish the material, including permission to use any material that may be protected by copyright.

The Manuscript

The manuscript should be typed in English, in an A4-size document, double-spaced with a margin of at least 25 mm all round. Pages should be numbered consecutively. Papers should be limited in length to 5000 words and 15 illustrations.

Language and Grammar

The manuscript should be written clearly in English. Insight does not have the resource to re-write articles that have been poorly written or translated, or that contain major deficiencies in English grammar. It is recommended that authors who are not fluent in English should have their manuscript checked by a translator or native English speaker prior to submission, or use a language editing service. If the language of the paper submitted does not meet the requirements of Insight's editorial staff in this regard, the manuscript will be rejected outright.

The Abstract

The abstract should introduce the paper succinctly. It should mention the techniques used without going into methodological detail and mention the most important results. The abstract should be written as a single paragraph and should cover the background, principal findings and conclusions of the paper. Please do not include any citations in the abstract. Avoid specialist abbreviations. Please note that in the online version (see below) the Abstract is viewable to all without charge so it represents a potentially valuable opportunity to 'market' your paper.

Equations

Excessive mathematical detail and formulae that are widely available in the literature should be avoided.

If your manuscript is, or will be, in Microsoft Word and contains equations, please follow these instructions to make sure that your equations are editable when the file enters production:

- Format display equations in MathType (<http://www.dessci.com/products/mathtype/>)
- Inline equations should be input completely via MathType.
- Do not include an equation that is part text, part MathType
- Do not use graphic objects.

Abbreviations

Please keep abbreviations to a minimum. Define them upon first use in the text, for example Magnetic Flux Leakage (MFL). Non-standard abbreviations should not be used unless they appear at least three times in the text.

References

References should be written in the order in which they appear in the text in the following format:

1. L Udpa and S S Udpa, 'Neural networks for the classification of non-destructive evaluation signals', IEE Proceedings-F, Vol 138, No 1, pp 201-205, February 1991.

The reference point in the text should be formatted thus [1].

Biographic Footnote

A short paragraph of 60-70 words in length containing brief education and career details about each author/co-author should be set out on a separate sheet, accompanied by a head and shoulders photograph. For presentation reasons, the biography and photographs will only be used where there are up to two co-authors. For three or more authors, a brief statement of qualifications, current employment and, where applicable, Institute membership will be published for each.

Acceptable File Types

Papers can be submitted using any standard word processing software, although MS Word is preferred. In addition, a PDF version may be uploaded, though the online system converts the submitted Word version to PDF for the review process.

Figures should be submitted as separate files in TIFF, EPS or JPEG format. Colour images should be formatted as high-quality JPEGs. Figures submitted in colour will be published in colour at no charge to the authors at the discretion of Insight's editorial staff.

LaTeX submissions

The main body of the TeX or LaTeX document (*ie* a file ending with '.tex') should be uploaded as above and designated as a Main Document. All files referenced by a main TeX/LaTeX document should be designated as a 'TeX/LaTeX Suppl File' (including other '.tex' files).

Awards

The John Grimwade Medal

Contributors to Insight who are members of the British Institute of Non-Destructive Testing (of any grade) qualify for consideration for the John Grimwade Medal. This is awarded to author(s) of the best paper written by a member to appear in that Journal each year. Assessment is carried out annually by the Institute's Technical Committee.

The Ron Halmshaw Award

Established in 1994 through the generosity of Dr R Halmshaw MBE, The Ron Halmshaw Award is for the best paper published in Insight on any aspect of industrial radiography or radiology. Assessment is carried out annually by the Institute's Technical Committee.

How to submit a paper

Insight offers an online paper submission and peer-review system to help balance the need for comprehensive and efficient data gathering with authors' modern-day desires to publish quickly.

Authors wishing to submit a paper for consideration should visit the website:

<http://mc.manuscriptcentral.com/insi>

or via the link on the Institute's home page at www.bindt.org

Here, authors are clearly guided through the submission process. They are also able to track the status and view the details of all their manuscripts in the Insight peer-review system.

Logging in

Access to the Insight submission site is provided in one of two ways:

1. Regular contributors and reviewers may have had an account already created for them. If this is the case they will have received an email with instructions on how to log in and set a user ID and password.
2. You may create your own account. Simply click on the 'Create Account' link at the top right-hand corner of the page and follow the step-by-step instructions.

Passwords

Please retain your password information. For security reasons, we will not email you your current password. If you forget your password you must enter your email address in the Password Help field and click 'Go'. The system will send you an email containing instructions for resetting your password.

The Welcome Page

When you log in you are taken to the Welcome page. Here you see links to all of the role centres for which you have permissions. Typically, authors are given both Author and Reviewer permissions.

To access your author dashboard page, click the 'Author Center' link.

Instructions and Forms

Click the tab at the top right corner of any site page to access the Guidelines for Authors, Copyright form and Insight's Publishing Agreement.

The Author Dashboard

This is where you begin the manuscript submission process. Also, at a glance, you can track the status and view the details of all your manuscripts. Click the appropriate queue in the My Manuscripts section. The information will display at the bottom of the page.

The Manuscript Submission Process

To begin the submission process, use the 'Click here to submit a new manuscript' button.

Follow the step-by-step instructions carefully.

The final review step before submitting your manuscript is to review your submission. All sections must display the green tick before you can click 'Submit' to complete the submission process.

After the paper is successfully submitted you will receive confirmation along with your manuscript ID number.

The manuscript will display in the 'Submitted Manuscripts' column of your dashboard.

Step-by-step instructions for the submission process and further details for LaTeX submissions may be found on the BINDT website at: <http://www.bindt.org/publications/insight-journal/online-paper-submission>

THE BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING

Midsummer House, Riverside Way, Bedford Road, Northampton NN1 5NX, UK. Tel: +44 (0)1604 438300; Fax: +44 (0)1604 438301; Email: insight@bindt.org

INSIGHT

INSIGHT – Non-Destructive Testing and Condition Monitoring is the journal of the British Institute of Non-Destructive Testing.

INSIGHT was launched in April 1994, replacing the former *British Journal of Non-Destructive Testing* and incorporating, in quarterly issues, the former *European Journal of Non-Destructive Testing*.

INSIGHT is published monthly and circulated worldwide to more than 65 countries.

FEATURES PROGRAMME 2021

		DEADLINES		
Month	Theme	Editorial Copy	Ad Copy Instruction	Ad Material
Jan	Novel Applications	16.11.2020	23.11.2020	30.11.2020
Feb	Electromagnetics	11.12.2020	18.12.2020	04.01.2021
Mar *	Composites Inspection	15.01.2021	22.01.2021	29.01.2021
Apr	Ultrasonics	15.02.2021	22.02.2021	01.03.2021
May	Optical and Thermal Methods	15.03.2021	22.03.2021	29.03.2021
Jun *	The Energy Industries	15.04.2021	22.04.2021	29.04.2021
Jul	The Rail Industry	14.05.2021	21.05.2021	28.05.2021
Aug	Condition Monitoring	15.06.2021	22.06.2021	29.06.2021
Sep *	NDT for Industry 4.0	15.07.2021	22.07.2021	29.07.2021
Oct	Radiography	16.08.2021	23.08.2021	31.08.2021
Nov	Ultrasonics	15.09.2021	22.09.2021	29.09.2021
Dec *	The Aerospace Industry	15.10.2021	22.10.2021	29.10.2021

* Euro issue

In addition to the above features, each issue includes general news stories affecting the whole industry and technical articles on a broad range of subjects.

INSIGHT contains:

- Technical and scientific reviews
- Original research and development papers
- Practical case studies and surveys
- Details of products and services
- Newsdesk – contract and marketing news from the industry
- NDT Info – the world's most comprehensive serially published survey of NDT literature
- Technical literature – a comprehensive review of relevant literature, including the latest international standards and safety information
- International Diary – a comprehensive listing of information and calls for papers concerning relevant events, conferences, symposia and exhibitions
- Profiles on personalities and organisations associated with the industry

Each issue embraces matter that is highly relevant to a wide range of readers, including engineers, technicians, academics and scientists, appealing to practitioners and young graduates alike.