



The 14th International Conference on Engineering Structural Integrity Assessment (ESIA14), in conjunction with, the 2017 International Symposium on Structural Integrity (ISSI-2017)

ESIA14-ISSI2017 Joint Conference Programme (16-17 May 2017)

Day 1	Time		
Opening	08:30	Registration	
	09:15	Welcome and Conference Introduction	Dr Brian Tomkins, FESI Chairman Prof Shan-Tung Tu, CSIC Chairman
Session 1	Key Note Presentations (1), Chair – Dr Brian Tomkins, Lecture Theatre		
	09:30	LRF foresight review on structural integrity	Prof Mike Fitzpatrick Coventry University, UK
	10:00	Developments in Two- and Three-Dimensional Weight Function Methods for Analysis of Crack Problems	Prof Xue-Ren Wu Beijing Institute of Aeronautical Materials, China
	10:30	Materials issues that challenge integrity across Rolls-Royce	Dr David Rugg Rolls-Royce Plc, UK
	11:00	Refreshments	
	11:30	A decade of progress of pressure vessel technology in China	Prof Xue-Dong Chen Hefei General Machinery Research Institute, China
	12:00	Quantification of environmental damage to engineering components	Dr Alan Turnbull National Physics Laboratory, UK
	12:30	Lunch	



Session 2	Integrity Assessment (1) – Welds and Residual Stresses, Chair – Prof Xue-Ren Wu, Lecture Theatre		
13:30	Optimal Design of Coke Drum Skirt Slots for Thermal-Mechanical Cyclic Loading	Prof Zihui Xia, University of Alberta, Canada	
13:50	Effects of Residual Stresses on Engineering Critical assessment considering elastic follow-up	Dr Guiyi Wu, TWI, UK	
14:10	Reduction of weld residual stresses by low temperature transformation welding rod: neutron diffraction measurement and numerical simulation study	Prof Wenchun Jiang and Dr Xiaowei Wang, China University of Petroleum - East China and Nanjing Tech University, China	
14:30	Residual Stresses in Low Transformation Temperature Welds	Di (Wendy) Wen, Cambridge University, UK	
14:50	Integrity assessment of pressurized pipe subjected to reversed bending	Dr Xiaohui Chen, Northeastern University, Qinhuangdao, China	
15:10	Refreshments		
15:40	Effects of Residual Stresses on Parameter of Crack Turning in Friction Stir Welded Aluminium Panels	Prof Yu E Ma, Northwestern Polytechnical University, China	
16:00	Accounting for Welding Residual Stresses and Crack Tip Constraint in Pipeline Defect	Mr Domenic Di Francesco, Penspen, UK	
16:20	Finite Element Analysis of the Metal-to-Metal Contact Flange Joint subject to External Bending Moment and Thermal Loading	Prof Lanzhu Zhang, East China University of Science and Technology, China	
16:40	Analysis of low cycle fatigue and creep fatigue behavior of P92 steel weld joints	Dr Xiaowei Wang, Nanjing Tech University, China	



	17:00	The effect of using creep properties mismatch between the HAZ/parent and the weld on the reheat cracking assessment of an AGR superheater S4 weld	Mr Satyajit Dey, EDF Energy/University of Bristol, UK
	17:20	Day 1 Finish	
Session 3	Integrity Assessment (2) – Structural Integrity Evaluation (1), Chair – Prof David Knowles, Conference Room 6		
	13:30	Chromaticity inspection method to Investigate Fatigue Crack Initiation on a 304 Stainless Steel	Prof Jie Zhao, Dalian University of Technology, China
	13:50	Structural integrity evaluation of submarine pressure hull welds	Mr German Romero Valiente, Mr Manuel Vicente Hernandez,, Navantia, Spain
	14:10	Failure analysis of a large oil storage tank on the effect of thermal-mechanical coupling	Prof Jinzhu Tan, Nanjing Tech University, China
	14:30	Evaluation of Remaining Strength for T-joint Piping with Fully Circumferential Local Wall Thinning Subjected to Internal Pressure	Dr Katsumasa Miyazaki, Hitachi GE, Japan
	14:50	Integrity evaluation of dissimilar wavy interface of 304L/533B explosive welding steel plates	Dr Yun-Fei Jia, East China University of Science and Technology, China
	15:10	Refreshments	
	15:40	Study of Ratchet limit and Fatigue life of welded pipes	Mr Manu Puliyaneeth, University of Strathclyde, UK
	16:00	Study on Design Method of Orthotropic Conical Shell Structure under External Pressure	Prof Changyu Zhou, Nanjing Tech University, China



	16:20	Extending life of an evaporator vessel through testing, inspection, modelling and analysis	Mrs Pat Liddicott, Sellafield Ltd, UK
	16:40	Simulating fatigue crack growth of a turbine disk	Dr Haijun Xuan, Zhejiang University, China
	17:00	Delamination detection and growth assessment in composite laminated beams through data-driven vibration structural health monitoring methodology	Dr David García Cava, University of Strathclyde, UK
	17:20	Day 1 Finish	
Session 4	Materials Technology (1) – Degradation/Ageing Aspects, Chair – Prof Zhichao Fan, Conference Room 7		
	13:30	Tearing-Creep Interaction Simulation using Strain-Rate-Dependent Multi-Axial Ductility Model	Prof Yun-Jae Kim, Korea University, South Korea
	13:50	Environmental Assisted Fatigue in High Temperature Water Environments of Stainless Steels	Dr Wenzhong Zhang, Amec Foster Wheeler, UK
	14:10	Crack growth behavior of P92 welded joint at elevated temperature under creep-fatigue conditions	Mr Jian Li, Nanjing Tech University, China
	14:30	The Effect of Thermal Ageing on Oxidation, Carburisation and Creep of Type 316H Stainless Steels	Dr Bo Chen, Coventry University, UK
	14:50	Effects of carburization on creep behaviour of Cr35Ni45Nb heat-resistant austenite steel	Dr Luowei Cao, China Special Equipment Inspection & Research Institute, China
	15:10	Refreshments	
	15:40	Investigation of Accumulated Collision Damages on Ship Plates	Prof Ling Zhu, Wuhan University of Technology, China



	16:00	The Importance of Stress Dependent Creep to Model Stress Relaxation for a Martensitic P92 Steel at 650°C	Dr Saber Khayatzadeh, Strathclyde University and Bristol University, UK
	16:20	Creep behaviour of metastable 304 stainless steel under cryogenic temperature	Dr Qiongqi Wang, East China University of Science and Technology, China
	16:40	Creep rupture properties evaluation by small punch beam tests	Dr Fakun Zhuang, China Special Equipment Inspection & Research Institute, China
	17:00	Day 1 Finish	
Session 5	Materials Technology (2) – Materials Modelling, Chair – Prof Peter Flewitt, Syndicate Room D		
	13:30	The effect of thermal ageing on the impact toughness of 16MND5 steel for nuclear reactor pressure vessel	Prof Xu Chen, Tianjin University, China
	13:50	Visco-Plastic Self-Consistent Modelling to Determine Dominant Slip and Twinning Systems in Magnesium WE43 at High Strain Rate	Mr Andrew Platts, University of Manchester, UK
	14:10	Study on the void growth and coalescence under low stress triaxiality	Dr Jianjun Chen, East China University of Science and Technology, China
	14:30	Improvement of Mechanical Properties of Stainless Steel through the Harmonic Structure Design	Dr Zhe Zhang, Tianjin University, China
	14:50	Effect of Microstructural Evolution on Mechanical properties for the A508-3 Steel before and after Phase Transition	Mr Chuanyang Lv, Zhejiang University of Technology, China
	15:10	Refreshments	



15:40	3-D intergranular mechanical behavior study in a blade groove-like component by crystal plasticity model with cohesive zone model	Dr Weizhe Wang, Shanghai Jiao Tong University, China
16:00	Discussion on finite element modelling of hydrogen distribution based on eddy current testing	Miss Haiting Zhou, East China University of Science and Technology, China
16:20	Analysis of crack growth behaviour in P92 steel under creep-fatigue condition using numerical simulations	Dr Lei Zhao, Tianjin University, China
16:40	3D characterisation of damage development in a SIC/SIC ceramic composite via X-ray tomography and digital volume correlation	Dr Shixiang Zhao, University of Oxford, UK
17:00	Day 1 Finish	
18:30	Pre-Dinner Drinks	
19:00	Dinner Commences	



Day 2	Time		
Session 6	Keynote Presentations (2), Chair – Prof Shan-Tung Tu, Lecture Theatre		
	09:00	Recent developments in high integrity concrete structures	Prof Erik Schlangen, University of Delft, Netherlands
	09:30	A Unified Approach for Creep-Fatigue Life Prediction	Prof Xian-Cheng Zhang East China University of Science and Technology, China
	10:00	Inspection Techniques	Prof Peter Cawley Imperial College London, UK
	10:30	Refreshments	
	11:00	Numerical Simulation of Battelle Piping System Test under Cyclic Loading	Prof Yun-Jae Kim University of Korea, South Korea
	11:30	Integrity Issues Associated with Composite Materials	Prof Tony Kinloch Imperial College London, UK
	12:00	Lunch	
Session 7	Integrity Assessment (3) – Structural Integrity Evaluation (2), Chair – Prof Haofeng Chen, Lecture Theatre		
	13:00	Fatigue and Damage Performance of Additive Manufactured Titanium: Control of residual stress and development of life evaluation method	Dr Bo Chen and Prof Xiang Zhang, Coventry University, UK
	13:20	The investigation of the easy damage structural positions in an EHV transformer by numerical and experimental methods	Ms Aiju Li, Shandong University, China



	13:40	A 3D Crack Evolution in Weld Metal, Base Metal and the Transitional Fusion Line under a Mixed Fatigue Loading	Dr Ramesh Chandwani, Zentech International, UK
	14:00	Seismic Integrity Evaluation Method of Structures under Multi-stage Seismic Action	Prof Wenfeng Liu, Qingdao University of Technology, China
	14:20	An Experimental Study on the Effect of Collision Damages of Tubular Members on its Ultimate Strength under Axial Compression	Mr Han Yang, Wuhan University of Technology, China
	14:40	Visualization of Components Crack Propagation Based on the Quantum Dot-Epoxy Resin Composite	Prof Weiling Luan, East China University of Science and Technology, China
	15:00	Evolution of structural integrity assessment procedures through detailed finite element analysis	Dr Feras Elagha, WS Atkins, UK
	15:20	Refreshments and final Comments, Dr Brian Tomkins and Prof Shan-Tung Tu	
Session 8	Integrity Assessment (4) – Methods Development, Chair – Mr John Sharples, Conference Room 7		
	13:00	Creep Damage Analysis for 20Cr32NiNb Hot Outlet Collector in a CO Reformer Furnace	Prof Jianming Gong, Nanjing Tech University, China
	13:20	Treatment of Bending Stress due to Internal Pressure at Nozzle Crotch Corner of Pressure Vessel for Defect Tolerance Assessment	Dr Katsumasa Miyazaki, Hitachi GE, Japan
	13:40	Comparison of R5, ASME NH and RCC-MRx Procedures in Creep-Fatigue Damage Assessments	Dr Liwu Wei, Amec Foster Wheeler, UK
	14:00	In-situ observation and numerical modelling of crack-inclusion interaction behaviour under cyclic loading	Mr De-Qiang Wang, East China University of Science and Technology, China
	14:20	A screening procedure to reduce in-line inspection data for structural integrity assessments of pipelines	Dr Nicolas Larrosa, University of Bristol, UK



	14:40	CBNA: an Integrity Analysis Tool for the UK AGR Graphite Core Damage Assessment	Dr Huaguo Teng, Amec Foster Wheeler, UK
	15:20	Refreshments and final Comments, Dr Brian Tomkins and Prof Shan-Tung Tu	
Session 9	Materials Technology (3) – Materials Behaviour, Chair – Prof Xu Chen, Syndicate Room D		
	13:00	Structural integrity of grade 91 steel components under creep-fatigue loading conditions	Prof Tasnim Hassan, North Carolina State University, USA
	13:20	Effect of Heat Treatment on Fatigue Properties of Surface Nanocrystallized Commercially Pure Zirconium	Prof Chonghui Zhang, Xi'an University of Architecture & Technology, China
	13:40	Influencing factor and control measurements in production phase for engineering structure integrity	Dr Huatang Yao, Lloyds Register Quality Assurance (Shanghai) Co Ltd
	14:00	Stress Corrosion Cracking Initiation Testing of Nickel Based Alloys	Ms Sarah Sherry, Amec Foster Wheeler, UK
	14:20	Localization and assessment of plastic deformation by non-collinear wave mixing in AL7075-T6	Mr Maoxun Sun, East China University of Science and Technology, China
	14:40	Effects of Micro-scale Laser Shock Processing without Coating in DZ17G Directionally-solidified Superalloy	Dr Xiangfan Nie, Air Force Engineering University, China
	15:00	Study on Energy Absorption Properties of Open-Celled Copper Foam with High Porosity	Dr Cong Li, Changsha University of Science and Technology, China
	15:20	Refreshments and final Comments, Dr Brian Tomkins and Prof Shan-Tung Tu	



Session 10	Materials Technology (4) – Materials Damage Mechanisms, Chair – Mrs Pat Liddicott, Adamson Suite		
	13:00	The Intrinsic Structural Integrity of Metals	Prof John Campbell, University of Birmingham, UK
	13:20	CMT preparation technology and fracture properties of the compound transition joints of high strength aluminum alloy and steel	Prof Shanglei Yang, Shanghai University of Engineering Science, China
	13:40	Optimization design for a resin-based composite fan blade	Dr Dianyin Hu, Beihang University, Beijing, China
	14:00	The Effect of a Low Constraint Geometry on Measured T0 Values for a Nuclear Reactor Pressure Vessel (RPV) Ferritic Steel	Miss Geena Rait, Imperial College London, UK
	14:20	Measurement of creep crack growth rate based on small specimen testing technique	Mr Kun Zhang, East China University of Science and Technology, China
	14:40	Based on the Cohesive Zone Model to Analyze Parameter Effects on Steel Sheet Fracture in the Cold Rolling Process	Dr Jianjun Chen, East China University of Science and Technology, China
	15:00	Study on mechanical properties of silicone rubber materials used as gaskets in PEM fuel cell environment	Dr Guo Li, Nanjing Institute of Technology, China
	15:20	Refreshments and final Comments, Dr Brian Tomkins and Prof Shan-Tung Tu	



List of posters

Number	Title	Authors and affiliation
1	Numerical investigation of the expansion process of tubular with thread joint: Deformation and residual stress	Dr Shugen Xu, China University of Petroleum (Huadong), China
2	Analytical and numerical modeling of non-collinear shear wave mixing for detection and characterization of plasticity	Mr Maoxun Sun, East China University of Science and Technology, China
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Conference dinner will be on Tuesday 16 May 2017 in the Conference Centre – Drinks from 18:30 and dinner commencing at 19:00.