



1st ICWNDT-2018 of HSNT and WGI

Eugenides Foundation, Athens Greece, 22-23 October 2018



1th International Conference on Welding & NDT of the Hellenic Society of NDT (HSNT) and the Welding Greek Institute

1st ICWNDT-2018

*{6th INTERNATIONAL CONFERENCE ON NDT OF HSNT & THE
1st INTERNATIONAL CONFERENCE ON WELDING OF WGI}*

**Skills – Certification of Personnel - Applications – Innovations
Industrial Manufacturing – Aerospace – Marine**

Venue: Eugenides Foundation - Planetarium



22-23 October 2018, Eugenides Foundation, Athens - Greece

PROGRAMME

Chairman and General Secretary of the Conference

Dr. Ioannis N. Prassianakis, President of HSNT, Professor Emeritus NTUA

Addresses: HSNT, PO BOX 64066, Zographou 157 10, Athens, Greece. Phone-Fax:(+30) 210-772 3759, Website: www.hsnt.gr, E-mail: hsnt@hsnt.gr, **WGI:** Trapezountos & Digeni Akrita, Elefsina 192 00, Attikis, Greece. Phone (+30) 210 3630050, Fax (+30) 2103636917, Website:www.wgi.gr, E-mail: tzaferis@wgi.gr

Athens 2018

MONDAY - 22 OCTOBER 2018

08:00 - 09:30 **Registration**

AUDITORIUM - 1st FLOOR

09:30 – 11:00

WELCOME & OPENING ADDRESSES

Chair-persons: I. Prassianakis, M. Tzaferis and Art. Vamvakousis

09:30-10:00 **Opening: Ioannis N. Prassianakis Dr.,** *NDT and the Contribution of the Hellenic Society of NDT in the Advancement, Development and Spreading of NDT in Greece*, Professor Emeritus NTUA, President of HSNT, Athens, Greece.

10:00-10:30 **Opening Addresses:**

1. **Tzaferis Meletios**, (Chief) Executive Director of WGI, Greece.
2. **Michail Folas**, President of the Hellenic Welding Institute, Greece.
3. **Nardoni Giuseppe**, President of Academia NDT International, Italy.
4. **Sapountzakis Evangellos**, Professor- Vice Rector NTUA.
5. **Kallergis George**, ESYD, Greece.
6. **Gotsis Vasilis**, Corinth Pipeworks S.A., Corporate Headquarters, Greece.
7. **Christidis Chrysostomos**, Special Adviser at the Administration of PPC, Greece.

10:30-10:45 **Moropoulou Antonia**, *The dynamic role of Non Destructive Testing in the diagnosis and protection of Cultural Heritage*, Professor – National Technical University of Athens, President of the General Assembly - Technical Chamber of Greece.

10:45-11:00 **Kotouzas Apostolos M.M.**, Polyxeni Merivani *The role of Ethics in NDT reliability*, Technology & Quality Control Centre (TQCC), G. Papandreou 150, 14452, Athens, Greece.

11:00 - 11:30

Coffee – Break

POSTER SESSION -1 – EXHIBITION OPENING - 1st FLOOR

Chair-persons: E. Sideridis, G. Petridis and C. Charitides

1. **Angelopoulos Spyridon**, George Banis, Polyxeni Vourna, Aphrodite Ktena, Evangelos Hristoforou, *Magnetic Permeability Measurement Device Based on Hall Effect*, Laboratory of

- Electronic Sensors, School of Electrical and Computer Engineering, National Technical University of Athens, Zografou Campus, Athens, 15780, Greece, e-mail: spyrosag@central.ntua.gr.
2. **Dragos Trinca** and Rui Madureira, *Sinogram-based Iterative Reconstruction of Welding Processes in Sparse View X-ray CT*, Centre for the Research and Technology of Agro-Environmental and Biological Sciences, Vila Real, Portugal.
 3. **Giannarakis I.**, I. N. Prassianakis, E. Sideridis, V. Kytopoulos, A. Pikrakis, *DETERMINATION OF MECHANICAL PROPERTIES AND WATER ABSORPTION OF NATURALLY AGED CONCRETE BY MEANS OF DESTRUCTIVE AND NON DESTRUCTIVE TESTS*, Department of Mechanics Laboratory of Testing and Materials, Faculty of Applied Mathematical and Physical Sciences, National Technical University of Athens, Zografou Campus, Athens, Greece.
 4. **Manoli Chrysoula K.**, Dionysios E Mouzakis*, *Experimental and Theoretical Study of a silicon micro-beam bending response via Raman Spectroscopy*, Hellenic Army Academy, Varis Koropiou Avenue 80, Kitsi 194 00, Attiki, Hellas, e-mails: *demouzakis@sse.gr, chrysamanoli@gmail.com.
 5. **Mitsoulis A.**, Berketis K., Dimoulis I., *Spectre-X a fully submersible weld inspection and corrosion mapping NDT robotic system for the marine and power generation industries*, e-mail: info@spectrum-labs.gr, website: www.spectrum-labs.gr.
 6. **Papadopoulos M.**, I. N. Prassianakis, E. Sideridis, V. N. Kytopoulos, J. Venetis, S. Papadopoulou, *The preventive – prognostic maintenance and damage repair in factories of deposit and storage of lignite and petrol products used in Electrical Power Industry*, Accepted for oral presentation and inclusion in the “Volume of Abstracts 1st International Conference on Welding and Non Destructive Testing (1st ICWNDT-2018), of HSNT and WGI, which will be held in Athens (Greece) - October 22-23.
 7. **Papadopoulos M.**, I. N. Prassianakis, E. Sideridis, J. Venetis, S. Papadopoulou, V. N. Kytopoulos, *Cracks in High Temperature (540 C⁰) and High Pressure (180 bar) pipes of hyperthermal steam production station of 1000 MW. Presentation and Photos of Damages in Steam Pipes*, Accepted for oral presentation and inclusion in the “Volume of Abstracts 1st International Conference on Welding and Non Destructive Testing (1st ICWNDT-2018), of HSNT and WGI, which will be held in Athens (Greece) - October 22-23.
 8. **Papadopoulos M.**, I. N. Prassianakis, E. Sideridis, J. Venetis, S. Papadopoulou, V. N. Kytopoulos, *Fracture of diesel shaft and 20 MW Electric Generator due to transitive torsional vibrations due to irregularities in the Network*, Accepted for oral presentation and inclusion in the “Volume of Abstracts 1st International Conference on Welding and Non Destructive Testing (1st ICWNDT-2018), of HSNT and WGI, which will be held in Athens (Greece) - October 22-23.
 9. **Papanikolaou S.** 1, 2, D. Giagopoulos², A. Zarkas³, T. Theodoulidis², S. Maropoulos¹, *Fatigue testing of a welded bucket wheel excavator*, 1 Department of Mechanical Engineering and Industrial Design, Technological Institute of West Macedonia, Kozani, Greece, 2 Department of Mechanical Engineering, University of Western Macedonia, Kozani, Greece, 3 Kardias Lignite Mine, Western Macedonia Lignite Center.
 10. **Stepanova K.** ¹, I. Kinzhagulov¹, A. Fedorov^{1,2}, *THE RESULTS OF EXPERIMENTAL STUDIES OF THE DEFECT FORMATION PROCESS IN THE FRICTION STIR WELDING PROCESS BY ACOUSTIC EMISSION*, ¹ITMO University, ²Engineering Design Center of Space-Systems Support.

Posters' area will be open during the whole period of the conference

SESSION – 1

11:30-12:30

Industrial Applications of Ultrasonic NDT Method

Chair-persons: Chakraborty J., Anastasopoulos Ath., Moussas V. C.

- 11:30-11:45 **Chakraborty Joyral** (1), Andrzej Kautinin (2), *Signal Processing Techniques for Change Detection in Reinforced Concrete Using Embedded Ultrasonic sensor*, Neostrein Sp. S.o.o., Lipowa 3, 30-702 Krakow, Poland1, e-mail: joyraj@neostrein.pl, Institute of Fundamentals of Machinery Design, Silesian University of Technology, Konarskiego 18A, 2, 44-100 Gliwice, Poland, e-mail: Andrzej.katumin@polsl.pl.
- 11:45-12:00 **Fousianis Panagiotis**, Dr. Athanasios Anastasopoulos , Lazaros Bouchagier, Panagiotis Kastanis, Dimitrios Papasalouros, Ioannis Ladis, Dimitrios Kourousis, *Ultrasonic Detection of Hydrogen Induced Cracking (HIC) in Oil and Gas Industry*, MISTRAS Group Hellas A.B.E.E., 7 EL. Venizelou, 14452 Metamorphosi, Athens, Greece.
- 12:00-12:15 **Graham K.**^{1, 2}, S. Kerkyras^{1, 2}, K. Tzaferis², V. L. Jantara Junior³, M. Papaelias³, *Inspection and evaluation of hydrogen-induced defects in SA516GR steel plate*,¹Lambda Test Limited, Edinburgh, UK, ²Swiss Approval, R&D Department, Aberdeen, UK, ³School of Metallurgy and Materials, The University of Birmingham, Birmingham, UK, Contact Author: Mr S. Kerkyras, e-mail: skerker@lambdatest.co.uk.
- 12:15-12:30 **Moussas V. C.**, A. Autousmis, S-M. Mavrommati, and, A-C. Roussou, *A Comparative Study of the Impact-Echo Method Performance on Concrete Specimens*, Dept. of Civil Engineering, University of West Attica, Greece.

SESSION – 2

12:30-14:30

Industrial Applications of Ultrasonic and Eddy Current NDT Methods

CREEP-UT Project

Chair-persons: K. Stamatakis, R. Raisutis, A. Antonatos

- 12:30-12:45 **Stamatakis Konstantinos Phd.**, Papadopoulos E. *Research Programs at TRSC/PPC SA*, Testing Research & Standards Center, PPC S.A. Greece.
- 12:45-13:00 **Raisutis Renaldas**, *Ultrasonic detection of early-stage creep damage in thermal power plants*, KTU, Channa Nageswaran, TWI Ltd, Liudas Mazeika, KTU, Audrius Jankauskas, KTU, Petar Vejić, INETEC, Ivan Hrabar, INETEC, Aristeidis Arvanitis, PPC SA, Alexandros Antonatos, PPC SA, Marko Budimir, INETEC, Corresponding author: Renaldas Raisutis, Ultrasound Institute of Kaunas University of Technology (KTU), Lithuania, e-mail: renaldas.raisutis@ktu.lt
- 13:00-13:15 **Budimir Marko**, *Advanced prototyping of industrial ultrasound and eddy current transducers: examples in aeronautics and nuclear power plants non-destructive examinations and structural health monitoring*, INETEC – Institute for nuclear technology Ltd., Dolenica 28, HR-10250 Lučko, Croatia, marko.budimir@inetec.hr
- 13:15-13:30 **Roussos N.**¹, A. Antonatos¹, A. Antonakakis¹, A. Kyrgiazoglou², T. Theodoulidis², *Eddy current inspection of heat exchanger tubes in a steam power plant*, 1: Testing Research & Standards Center, PPC S.A., 2: University of Western Macedonia, Department of Mechanical Engineering.
- 13:30-13:45 **Raisutis Renaldas**, Rymantas Kazys, Liudas Mazeika, Egidijus Zukauskas, Reimondas Sliteris, *Non-Destructive techniques for extreme conditions and non-conventional tasks*, Corresponding author: Renaldas Raisutis, Ultrasound Institute of Kaunas University of Technology (KTU), Lithuania, e-mail: renaldas.raisutis@ktu.lt.

- 13:45-14:00 **Zachariadis Konstantinos**, *The use of advanced radiographic techniques in the Greek market and abroad. Qualification and certification opportunities for inspectors by TÜV HELLAS*, Dipl- Mechanical Engineer NTUA, Welding & Inspection Engineer (DVS, IIW), ENISO 9712 Level 3 Inspector (VT,PT,MT,RT,UT), TÜV NORD Czech authorized Examiner for NDT Personnel.
- 14:00-14:15 **Michailidis P.**¹, Ch. Voulgaraki², T.Theodoulidis¹, *Simulation of ultrasonic testing on ferritic weld joints with commercial software*, 1: Department of Mechanical Engineering, University of Western Macedonia, Bakola & Sialvera, Kozani, 50132 Greece, 2: Testing Research & Standards Centre, Public Power Co, Leontariou 9, Kantza, 15351 Athens, Greece.
- 14:15-14:30 **Kyrgiazoglou A. ***, T. Theodoulidis, *Simulation and experiments on the eddy current method to detect fatigue cracks in welds*, Department of Mechanical Engineering, University of Western Macedonia, Greece *Corresponding author: Bakola & Sialvera, 50132, Kozani, Greece, akyriazoglou@uowm.gr.

14:30-15:15

Lunch

SESSION – 3

15:15-17:00

Welded Structures & Inspection

Chair-persons: Lasserre F., Stepanova K., Kotouzas, A.,

- 15:15-15:30 **Ohms C.**, M.C. Smith, M. Keavey, S. Bate, J. Delmas, V. Robin, O. Doyen, A.G. Youtsos*, *The Activities of NeT – the European Network on Neutron Techniques Standardization for Structural Integrity*, *presenting author, email: anastasius.youtsos@gmail.com; Chairman, NeT.
- 15:30-15:45 **Lasserre Frédéric**¹, Jean Marc Crauland², David Muller¹, Michel Jambon², *Implementation of combined UT techniques for the qualified inspection of welds in thick wall primary components*, 1 FRAMATOME, Paris, France, 2 FRAMATOME / CM, Chalon - St Marcel, France.
- 15:45-16:00 **Rahim Tahir**, *CHARACTERIZATION OF DISSIMILAR METAL WELD JOINT BASED ON NON-DESTRUCTIVE TESTING (NDT), FRACTURE MECHANICS AND MICROSTRUCTURAL ANALYSIS*, National Centre for Non-Destructive Testing (NCNDT), Islamabad Pakistan
- 16:00-16:15 **Mazzarelli Antonio**, Key Account Automotive & Product Manager Equipment Italy & Balkans, Lincoln Electric Italia Srl, e-mail: amazzearelli@lincolnelectric.eu, +39 335 6873438, *High productivity automatic welding systems - Tandem MIG and Long Stick out SAW*, **Vincenzo Di Luca**, PM Cutting Automation Italy & Balkans, Country Manager South Balkans Lincoln Electric Italia Srl, e-mail: vdiluca@lincolnelectric.eu, +39 338 6412952
- 16:15-16:30 **Kordatos Ioannis Dr.**, *Investigation of the effects that multiple repair procedures have to the structural steel S355J2*, Hellenic Welding Association, Panagiotis Benetatos, Olympic Mechanical

- 16:30-16:45 **Kotouzas Konstantinos**, Kotouzas Apostolos, Dimitrios Pitteris, *Comparative Analysis of Conventional Ultrasonics – Phased Array UT & TOFD in Weld Inspection*, Technology & Quality Control Centre (TQCC), G. Papandreou 150, 14452, Athens, Greece.
- 16:45-17:00 **Papanikolaou S.** ^{1, 2}, D. Fasnakis², A. Maropoulos³, D. Giagopoulos¹, S. Maropoulos², T. Theodoulidis¹, *Non-destructive testing of fatigue specimens of a welded bucket wheel excavator*, ¹ Department of Mechanical Engineering, University of Western Macedonia, Kozani, Greece, ² Department of Mechanical Engineering and Industrial Design, Technological Institute of West Macedonia, Kozani, Greece, ³ Department of Mechanical Engineering, Aristotle University of Thessaloniki, Greece

17:00 - 19:15

Coffee – Break

SESSION – 4

17:30-19:00

KRAKEN SESSION TITLE

Large parts high-precision multi-material subtractive and additive manufacturing in a single Hybrid Robotic Machine

Chair-persons: Jose Antonio Dieste, Maitane Olabarria, Dimitrios Karadimas

- 17:30-17:45 **Karadimas D.1**, Somakos L.1, Bakalbasis D.1, Prassas A.1, Karadimas G.1, *Vision-based Monitoring and Control System for Additive Manufacturing Processes*, 1 Vision Business Consultants, 10 Antinoros Str., 11634, Athens, Greece, Email: d.karadimas@vbc.gr.
- 17:45-18:00 **Derekar Karan** (1,2*), Geoff Melton(3), Jonathan Lawrence(1), Lei Xu(3), Adrian Addison(3), *Effect of interpass temperature on microstructure of WAAM of aluminium*, (1) Faculty of Engineering and Computing, Coventry University, Coventry, UK, (2) National Structural Integrity Research Centre (NSIRC Ltd), Cambridge, UK, (3) TWI, Great Abington, Cambridge, UK, *derekark@uni.coventry.ac.uk.
- 18:00-18:15 **Alberto Laguía** (1), José Antonio Dieste (1), Iván Monzón (1), Javier de Vicente(1), Chris Reade (2), Cliff Jones (2), Peter Senz (3), *Hybrid material (metal + non-metal) 3D printing*, (1) Fundación Aitiip, Pol. Ind. Empresarium, c/Romero nº12, 50720, Zaragoza, Spain, (2) Alchemie Ltd. Warwick Road Kineton Warwick CV35 0HU United Kingdom, (3) Arasol. Ctra. Valencia, km 6,700 Polígono Río Huerva. Nave 1-A 50410 Cuarte de Huerva. Zaragoza. Spain, * alberto.laguia@aitiip.com.
- 18:15-18:30 **Francesco Crivelli**1*, Valentin Baumann2, Werner Neddermeyer3, Philipp Schmid1, Alexander Steinecker1, *Large volume hybrid manufacturing based on absolute laser tracking technology*, 1 CSEM SA, Untere Gründlistrasse 1, 6055 Alpnach Dorf, Switzerland, 2 Hexagon Manufacturing Intelligence, Mönchmattweg 5, 5035 Unterentfelden, Switzerland, 3 Espace 2001 SA, 5 bd Royal, 2449 Luxembourg, e-mail: * francesco.crivelli@csem.ch.
- 18:30-18:45 **Dieste J.A.** (1*), I. Monzón (1), A. Laguía(1), J. de Vicente (1), *New concepts in Metal Additive Manufacturing. Towards the affordability of large-part 3D*

printing, (1) Fundación Aitiip, Pol. Ind. Empresarium, c/Romero nº12, 50720, Zaragoza, Spain, *joseantonio.dieste@aitiip.com.

18:45-19:00 **Cretu Nicolae** ^{*1}, Mihail-Ioan Pop^{*2}, *A possible application in NDT of the Intrinsic Transfer Matrix Method*, ^{*Dept. of Electrical Engineering and Applied Physics, Transilvania University of Brasov, Romania,}¹ e-mails: cretu.c@unitbv.ro, ²mihailp@unitbv.ro

TUESDAY - 23 OCTOBER 2018

08:00 - 09:00 **Registrations**

SESSION – 5

09:00-10:45

Advanced NDT Methods – Industrial Application of NDT Methods-2

Chair-persons: Troisky V., Moshin A., Maropoulos A.

- 09:00-09:15 **Chacón Ana María Peco** ¹, Long Zang ², Mayorkinos Papaelias ³, Fausto Pedro García Márquez ¹, *A Survey of Non-Destructive Tests and False Alarms in Wind Turbines*, ¹ Ingenium Research Group, Universidad Castilla-La Mancha, 13071 Ciudad Real, Spain, {isaac.segovia; faustopedro.garcia}@uclm.es, ² School of Electrical & Electronic Engineering, Manchester University, United Kingdom e-mail: long.zhang@manchester.ac.uk, ³ School of Metallurgy and Materials, The University of Birmingham, Birmingham, UK, e-mail: m.papaelias@bham.ac.uk.
- 09:15-09:30 **Jantara Junior**¹V. L., J. Zhou¹, S. Roshanmanesh¹, F. Hayati², S. Hajiabady¹, J. Thompson¹, R. Firth¹, H. Basoalto¹, H. Dong¹, X. Y. Li¹, S. Kerkyras³, F. P. Garcia Marquez⁴, M. Papaelias¹, *Towards predictive maintenance of multi-MW wind turbines*, ¹ School of Metallurgy and Materials, The University of Birmingham, Birmingham, UK, ²School of Engineering, The University of Birmingham, Birmingham, UK, ³Swiss Approval, R&D Department, Aberdeen, UK, ⁴INGENIUM Group, ETSII, Universidad de Castilla-La Mancha, Ciudad Real, Spain.
- 09:30-09:45 **Mohsin A. 12**, M. Farooq ¹, T. Rahim ¹, M. M. Jan ¹, Z. Ahmed ¹, *Applications of Non-Destructive Testing (NDT) for Detecting Undercoating Defects on Main Gas Pipeline*, ¹National Centre for Non-Destructive Testing (NCNDT), Islamabad, Pakistan, e-mail: 2amena.mohcen@gmail.com.
- 09:45-10:00 **Ramírez Isaac Segovia**¹, Mayorkinos Papaelias ², Fausto Pedro García Márquez ¹, *Fault Pattern Recognition of Photovoltaic Panels with Infrared Sensors embedded in UAVs*, ¹ Ingenium Research Group, Universidad Castilla-La Mancha, 13071 Ciudad Real, Spain, {isaac.segovia; faustopedro.garcia}@uclm.es, ² School of Metallurgy and Materials, The University of Birmingham, Birmingham, UK, e-mail: m.papaelias@bham.ac.uk.
- 10:00-10:15 **Sideridis E.**, V. N. Kytopoulos, M. Papadopoulos, J. Venetis, I. N. Prassianakis, *Destructive and Non-Destructive Determination of the elastic constants of Iron Particle – Epoxy Composites, Comparison with Theoretical Results*, Accepted for oral presentation and inclusion in the “Volume of Abstracts, 1st International Conference on Welding and Non Destructive Testing, (1st ICWNDT-2018), of HSNT and WGI, which will be held in Athens (Greece) - October 22-23.

- 10:15-10:30 **Tragazikis I.K.**, P.T. Dalla, D.A. Exarchos, T.E. Matikas*, *The effect of electrochemical corrosion on the fatigue limit of aluminum structures*, *Department of Materials Science & Engineering, University of Ioannina, 45110 Ioannina, Greece.
- 10:30-10:45 **Troitskiy V. A.**, Prof. *Possibility of improvement of reliability of underground main gas pipelines*, E. O. Paton Electric Welding Institute of the NAS of Ukraine, Kyiv.

10:45 - 11:15

Coffee – Break

SESSION – 6

11:15-13:15

Acoustic Emission –Thermography-Modeling & Other NDT Methods

Chair-: Dutta S., Fausto P., Papaelias M.

- 11:15-11:30 **Apostolidis Anestis**, Ioanna Drympeta, Konstantinos Georgopoulos, Georgios Pyrialakos, Nikolaos Kantartzis, and Dimitrios Chrissoulidis, *3D-printed multi-angle spherical cavity resonator for accurate material and moisture characterization*, Department of Electrical and Computer Engineering, Aristotle University of Thessaloniki, University Campus, Thessaloniki GR-54124, Greece.
- 11:30-11:45 **Dutta Somen**¹, Prof. Dr.-Ing. Klaus Drechsler², Prof. Dr.-Ing. Michael Kupke³, Dr. Alfons Schuster⁴, *3D Thermography visualisation and defect localisation from single view thermography measurement result utilising either an industrial robot or a laser system or both*, ¹German Aerospace Centre, Germany, somen.dutta@dlr.de; ²Technical University of Munich, Germany, drechsler@lcc.mw.tum.de; ³German Aerospace Centre, Germany, michael.kupke@dlr.de; ⁴German Aerospace Centre, Germany, e-mail: alfons.schuster@dlr.de.
- 11:45-12:00 **Fausto Pedro Garcia Marquez**, *Predictive analysis of robotic manipulators through inertial sensors*, FaustoPedro.Garcia@uclm.es.
- 12:00-12:15 **Herraiz Álvaro Huerta**, Alberto Pliego Marugán, Fausto Pedro García Márquez, *A novel walking robot based system for non-destructive testing in wind turbines*, Ingenium Research Group, Universidad Castilla-La Mancha, 13071 Ciudad Real, Spain, e-mails: alvaro.huerta@uclm.es, alberto.pliego@uclm.es, faustopedro.garcia@uclm.es.
- 12:15-12:30 **Kousiatza Charoula**, Dimitris Karalekas, *Application of Temperature Sensors for Thermal Profiles Monitoring in Additively Manufactured Plates*, Laboratory of Advanced Manufacturing Technologies & Testing, University of Piraeus, Piraeus, Greece.
- 12:30-12:45 **Koutsianitis Panagiotis I.**, Georgios K. Tairidis, Georgios E. Stavroulakis, *Structural health monitoring of a wind turbine blade using artificial neural networks*, School of Production Engineering and Management, Technical University of Crete, Chania, GR-73100, Greece, e-mails: panoskout@gmail.com tairidis@gmail.com, gestavr@dpem.tuc.gr, website: http://www.comeco.tuc.gr.
- 12:45-13:00 **Papaelias M.**¹, A. Amini¹, R. Culwick¹, J. Heesom¹, Z. Huang¹, V. L. Jantara Junior¹, S. Kaenwunruen², S. Kerkyras³, M. Kongpuang¹, F. P. Garcia Marquez⁴, S. Shi^{1,5,6}, A. Upton¹, P. Vallely^{1,7}, *Advanced remote condition monitoring of railway infrastructure and rolling stock*, ¹School of Metallurgy and Materials, The University of Birmingham, Birmingham, UK, ²School of Engineering, The

University of Birmingham, Birmingham, UK, ³Swiss Approval, R&D Department, Aberdeen, UK, ⁴INGENIUM Group, ETSII, Universidad de Castilla-La Mancha, Ciudad Real, Spain, ⁵National Structural Integrity Research Centre, Cambridge, UK, ⁶TWI Technology Centre, Port Talbot, Wales, UK, ⁷Network Rail, Baskerville House, Birmingham, UK.

13:00-13:15 **Tsainis Andreas - Marios 1**, George Papazafeiropoulos², Achilleas Vairis³, *FINITE ELEMENT MODELLING OF THE ORBITAL FRICTION WELDING PROCESS*, ¹Faculty of Science, Engineering and Computing, Kingston \University London UK Penrhyn Rd, Kingston upon Thames KT1 2EE e-mail: amtsainis.mecheng@yahoo.com, ²Institute of Structural Analysis and Antiseismic Research National Technical University of Athens Athens, GR 15780, Greece e-mail: gpapazafeiropoulos@yahoo.gr, ³Department of Mechanical Engineering Technological Education Institute of Crete Heraklion, Crete, Greece e-mail: vairis@staff.teicrete.gr

13:15-14:00

Lunch

SESSION – 7

14:00-16:15

CIVIL ENGINEERING APPLICATIONS - STANDARDIZATION

Chair-persons: Chondros Th., Krallis K., Tsougranis Alex.

- 14:00-14:15 **Bouranta Katerina**, *Presentation of ESYD and the role of accreditation. Assessment and Accreditation of NDT's Laboratories*, Physicist, MSc. Dynamics of Engineering Structures, HELLENIC ACCREDITATION SYSTEM, Laboratories Accreditation Division.
- 14:15-14:30 **Chondros Thomas G.** ¹, CONSTANTINOS CHARITIDIS², ATHANASSIOS J. GRAMMATIKOS³, NIKOLAOS DAMALAS³ *"Design Approval and Testing of Vehicles Transporting Dangerous Goods and the ADR Regulation"*, ¹Associate Professor, university of Patras, mechanical engineering and Aeronautics Department, e-mail: chondros@ upatras.gr, chondrostg@gmail.com, ² WPK Hellas, ³ Jet Engineering S.A.
- 14:30-14:45 **Chondrou Irini T.** ¹, SOFIA D. PANTELIOU², THOMAS G. CHONDROS³, *"Design, Inspection and Testing of steel LPG bottles for household use"*, ¹. Emirates Group Dubai, ² EcoMedics St Louis MO, ³Associate Professor, Mechanical Engineering and Aeronautics Department, University of Patras, Corresponding author, e-mail: chondros@ upatras.gr, chondrostg@gmail.com, ² WPK Hellas, ³ Jet Engineering S.A.
- 14:45-15:00 **Diamantopoulos Kostas**, *Failure of a wind generator shaft due to a welding repair. Solutions and proposed welding repair practices.*
- 15:00-15:15 **Krallis K.** Dr.-Ing. ¹, Prof. Dr.-Ing. NG Orfanoudakis², *Comparison of primary with non-intrusive flow measurement methods*, ¹ Consultant Engineer, F. Negri 82, GR-11361 Athens, Greece, ² Laboratory for Steam Boilers, Turbines & Thermal Plants, TEI-Central Greece, GR-34400 Psachna Evoia, Greece, e-mail: norfan@teihal.gr, E-mail: norfan@teihal.gr.
- 15:15-15:30 **Krallis Konstantinos** Dr. *Comparison of Welding Inspector qualification or certification schemes*, Consulting Engineer, Fokionos Negri 82, 11361 Athens, Greece, e-mail: kkrallis@tee.gr.

- 15:30-15:45 **Zarkas A.** 1, A. Maropoulos², S. Papanikolaou^{3,4}, S. Maropoulos³, ***Rim replacement of a bucket wheel excavator***, 1Kardia Lignite Mine, Western Macedonia Lignite Center, 2Department of Mechanical Engineering, Aristotle University of Thessaloniki, 3Department of Mechanical Engineering and Industrial Design, TEI of West Macedonia, Kozani, Greece, 4Department of Mechanical Engineering, University of West Macedonia, Kozani, Greece.
- 15:45-16:00 **Papachristoforou* Michail**, Vasilis Christopoulos^{**}, Stelios Xanthos^{***}, ***Automated Crack Detection Algorithm for Surface Inspection of Concrete Structures***, *Dr. Civil Engineer, Laboratory of Building Materials AUTH, e-mail: papchr@civil.auth.gr, ** Undergraduate student, Department of Automation Engineering ATEITH, e-mail: vasilisch93@gmail.com, *** As. Professor, Department of Automation Engineering ATEITH, e-mail: xanthos@autom.teithe.gr.
- 16:00-16:15 **Tsougkranis Alexander**, Senior NDT Lecturer Training & Examination' Services, ***NDT In Service Inspection Training and certification aspects***, TWI Ltd, Granta Park, Great Abington, Cambridge CB21 6AL, UK.

16:15 - 16:45

Coffee – Break

SESSION – 8

16:45-18:15

Materials Characterization – Electro Magnetic NDT Techniques

Chair-persons: Ev. Hristoforou, St. Kouridakis and Th. Theodoulidis

- 16:45-17:00 **Angelopoulos Spyridon**, Polyxeni Vourna, Aphrodite Ktena, Evangelos Hristoforou, ***Development of a magnetometer calibration device***, Laboratory of Electronic, Sensors, School of Electrical and Computer Engineering, National Technical University of Athens, Zografou Campus, Athens, 15780, Greece, e-mail: spyrosag@central.ntua.gr.
- 17:00-17:15 **Christodoulou A. Dr.**, ***An Advanced X-Ray Solution for Detection and Deterrence of Technical Fraud in Cycling For the Union Cycliste Internationale***, VJ TECHNOLOGIES, 55 rue du Général Leclerc, 57870 Hartzviller, France, Phone : +33 680 21 55 75, website : www.vjt.com.
- 17:15-17:30 **Cheilakou Eleni**¹, N. Tsopelas¹, T. Brashaw², A. Anastasopoulos¹, P.I. Nicholson³, A. L. Clarke³, T. Sattar⁴, A. Kaur⁴, B. Ma⁴, K. Shah⁵, M. Kimball⁵, G.S. Virk⁵, ***Digital Radiography Inspection of Flexible Risers in Offshore Oil and Gas Industry***, ¹MISTRAS Group Hellas A.B.E.E., 7 EL. Venizelou, 14452 Metamorphosi, Athens, Greece, ²MISTRAS Group Limited, Norman Way Industrial Estate – Over – Cambridge CB24 5QE, ³TWI Technology Centre (Wales), Harbourside Business Park, Port Talbot, SA13 1SB, ⁴London South Bank University, 103 Borough Road, London SE1 0AA, ⁵Innovative Technology and Science Ltd, Hildersham Road, Cambridge CB21 6DR, UK.
- 17:30-17:45 **Kouridakis Stelios J.**, ***ELECTROMAGNETIC METHODS AND TECHNIQUES FOR DETECTION OF OBJECTS, MATERIALS, AQUIFERS AND EXPLORATION OF GAS OR OIL DEPOSITS AND MINERALS***, Department of Electronics Engineer, School of Applied Sciences, Romanou 3 – 73133 Chania, TEI of Crete, Greece, e-mail: kouridakis@chania.teicrete.gr, stkourid@otenet.gr.

- 17:45-18:00 **Mouzakis Dionysios E.,** *SMART SENSOR SYSTEMS IN COMPOSITE MATERIALS*, Hellenic Army Academy, Department of Military Sciences, Sector of Mathematics and Engineering Applications, Applied Mechanics Laboratory, GR 16673, Vari – Greece, e-mail: demouzakis@sse.gr
- 18:00-18:15 **Pappoutas K.**¹, A. Mourouzidou¹, S. Kousidis¹, T. Theodoulidis¹, N. Roussos², A. Antonatos², *Eddy current testing of ferromagnetic finned boiler tubes with the NFT technique*, 1: University of Western Macedonia, Department of Mechanical Engineering, Bakola & Sialvera, 50132 Kozani, Greece, 2: Testing Research & Standards Center, Public Power Corporation, Leontariou 9, Kantza, 15351 Attica, Greece.

18:15 - 18:30 CLOSING CEREMONY – CONCLUSIONS
Chair-persons: I. Prassianakis, M. Tzaferis and Art. Vamvakousis

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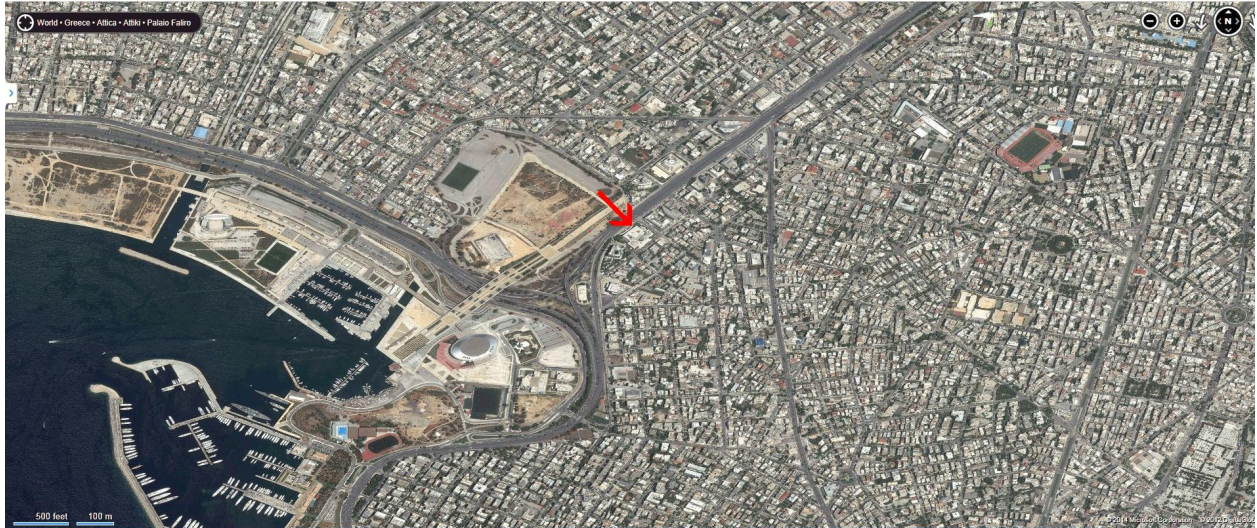
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Acropolis of Athens, with the Roman-era Odeon of Herodes Atticus seen on bottom left



The marble inscription (stele) of Eleusis of the 4th century BC, discovered by D. Philios in 1894 is considered as the oldest European Standard, Archaeological Museum of Eleusis.