

3rd International Conference of Engineering Against Failure



26-28 June 2013
Kos, GREECE

Conference Chairmen

Prof. Sp. Pantelakis - University of Patras, Greece
Prof. G. Gibson - University of Newcastle, UK

Organized by



Laboratory of Technology
& Strength of Materials,
University of Patras



Hellenic Metallurgical Society

Under the auspices of





Final Conference Program

TUESDAY, June 25, 2013

18:00 pm - 20:00 pm	Registration
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WEDNESDAY, June 26, 2013

9:00 am - 17:00 pm	Registration - Coffee		
09:30 am - 10:00 am	Opening Ceremony - Welcome by the Chairmen of the Conference		
10:00 am - 10:30 am	Keynote Lecture: Sp. Pantelakis , Integral Aerostructures: advantages, problems, challenges		
10:30 am - 11:00 am	Keynote Lecture: G. Gibson , Characterization and Modeling the Response of Carbon Fiber Reinforced Composite Structures to Fire		
11:00 am - 13:00 pm	SESSION 1 (Colossos) Novel engineering approaches on composite materials (Part I) Chairman: M. Guagliano	SESSION 2 (Asclipios) Joining Technologies of Composite Materials Chairman: R. Ruzek	SESSION 3 (Delphi) Characterization of fracture (Part I) Chairman: H. Atapek
11:00 am - 11:20 am	1.1 Healing and toughening of delamination cracks in carbon-epoxy composites using mendable polymer stitching <i>K. Pingkarawat, C.H. Wang, R.J. Varley, A.P. Mouritz</i>	2.1 Practical application of FEM to determine the effect of mechanical fasteners on stress state and fatigue behavior of aircraft structure <i>R. Doubrava</i>	3.1 A metallographic study on a quenched and tempered steel perforated by ballistic impact <i>S.H. Atapek, H.K. Zeytin, S. Polat, G. Guven</i>
11:20 am - 11:40 pm	1.2 Effect of low temperature air plasma treatment on physico-chemical properties of kaolinite/polyethylene composites <i>L. Lapcik, B. Lapcikova, I. Krasny, I. Kupska</i>	2.2 Influence of processing conditions on morphology and mechanical properties of PP particulate composites <i>E. Nezbedova, F. Krcma, L. Pospisil, R. Lach</i>	3.2 A study on the wear behavior of CuSn10 cast bronze materials produced by different casting techniques <i>S. Polat, S.H. Atapek, E. Turedi, Z. Taslicukur, G.S. Altug</i>
11:40 pm - 12:00 pm	1.3 Application of thermography and acoustic emission to detect impact damage in CFRP <i>C. Colombo, D. Crivelli, G. Gobbi, M. Guagliano, L. Vergani</i>	2.3 Design and certification of a jet trainer aircraft primary structure repair using boron composite adhesive bonded patch <i>R. Ruzek, J. Raska, R. Doubrava</i>	3.3 The effect of heat treatments on the wear behavior of AISI H11 hot work tool steel <i>G. Aktas, E. Turedi, S.H. Atapek, S. Polat</i>
12:00 pm - 12:20 pm	1.4 Effect of clay on epoxy-based MWCNT-COOH nanocomposites conductivity <i>V. Vittoria, L. Vertuccio, B. De Vivo, G. Spinelli, V. Tucci, L. Guadagno, P. Lamberti, V. Bugatti</i>	2.4 Strain concentration and fracture at the impact site during compression of a carbon/epoxy composite <i>M. Kadlec, V. Kafka</i>	3.4 A fractographic study on a failed hardened steel: effect of microstructure on the fracture <i>S.H. Atapek, M. Zeren, F. Kahriman</i>
12:20 pm - 12:40 pm	1.5 Design and characterization of a bio-inspired composite <i>F. Libonati, L. Vergani, C. Colombo</i>	2.5 Design of steel/PTFE constructional bonding technology - from submission towards solution <i>J. Podzimek</i>	3.5 Characterization of the fracture behavior of X42 microalloyed pipeline steel <i>H.I. Unal, S.H. Atapek, B.G. Beleli, S. Polat, S. Gumus, E. Erisir</i>

12:40 pm - 13:00 pm	1.6 Role of graphitic char on post-fire properties of glass/phenolic gratings used to replace steel on offshore platforms <i>A. G. Gibson, J.K. Humphrey, S. Christke, G. Kotsikos, R. Holliday, P. DiModica</i>	2.6 Advanced evaluation method of fatigue properties of original and innovated aircraft metal principal structure elements <i>V. Horak, M. Oberthor, J. Sedek</i>	3.6 A failure analysis of AA5083 mold material used for curing rubber compounds <i>A. Alkan, S. Gumus, S.H. Atapek, S. Polat</i>
13:00 pm - 14:15 pm	Lunch Break		
14:15 pm - 14:45 pm	Keynote Lecture: M. Guagliano , Nanostructured surfaces obtained by severe impact treatments: properties, problems and applications		
14:45 pm - 15:00 pm	Coffee Break		
15:00 pm - 16:40 pm	SESSION 4 (Colossos) Fatigue of materials - Influence of microstructure and processing Chairman: Al.Th. Kermanidis	SESSION 5 (Asclipios) Corrosion, Erosion and Wear Resistance Chairwoman: A. Lekatou	SESSION 6 (Delphi) Ageing of composite structures Chairmen: D. Mouzakis & S. Zaoutsos
15:00 pm - 15:20 pm	4.1 Effect of overaging on fatigue crack propagation of 2024 T3 aluminum alloy <i>A. Tzamtzis, A.T. Kermanidis</i>	5.1 Microstructure and corrosion resistance of aluminum alloys containing complex metallic alloy phases <i>A.K. Sfikas, A. Lekatou, A.E. Karantzalis, D. Sioulas</i>	6.1 Time temperature superposition response of carbon fiber reinforced composites plaques under accelerated aging conditions <i>D.E. Mouzakis</i>
15:20 pm - 15:40 pm	4.2 Effect of austenite stability on fatigue performance of TRIP 700 steel <i>G.N. Haidemenopoulos, A.T. Kermanidis, C. Malliaros, H.H. Dickert, P. Kucharzyk, W. Bleck</i>	5.2 Wear behavior of an aluminum alloy subjected to conventional and severe shot peening treatment <i>M. Palacios, I.F. Pariente, S. Bagherifard, M. Guagliano</i>	6.2 Residual strength of CFRPs after combined creep-fatigue loading modes <i>S.P. Zaoutsos</i>
15:40 pm - 16:00 pm	4.3 Influence of heat treatment on the fatigue behavior of spheroidal graphite irons <i>G. Meneghetti, M. Ricotta, S. Masaggia, B. Atzori</i>	5.3 Microstructure, corrosion and wear resistance evaluation of aluminum matrix composites reinforced by TiC and WC nanoparticles <i>A.E. Karantzalis, A. Lekatou, A. Evangelou, V. Gousia, C. Miskaki, A. Sfikas, D. Sioulas, Z. Gacsi, P. Baumli, G. Kaptay, A. Makszimus</i>	6.3 An implicit representation of the fiber/matrix interface via the level set method in connection with a shear-lag concept to propose a damage mechanism in composites <i>A.I. Arvanitakis, D.E. Mouzakis, S.P. Zaoutsos</i>
16:00 pm - 16:20 pm	4.4 Fatigue life evaluation of an aircraft fuselage panel with a circumferential crack and a broken stringer <i>M. Burak Sayar, A. Kayran</i>	5.4 Modeling the tensile behavior of corroded aircraft aluminum alloy 2024-T3 <i>D.D. Setsika, K.I. Tserpes, A.N. Chamos, S.G. Pantelakis</i>	6.4 Applications of stochastic modeling concepts in ageing detection of structural composites <i>D. Dimogianopoulos, S.P. Zaoutsos, D.E. Mouzakis</i>
16:20 pm - 16:40 pm	4.5 Experimental investigation of fatigue crack growth in aluminium plates repaired by FML composite patch <i>A.P. Anaraki, F.A. Ghasemi, M. R. Kalestan, H.M. Kashani</i>	5.5 Tribological behavior of wear-resistant and abradable plasma sprayed coating applied to aeroengines <i>N.M. Vaxevanidis, A. Koutsomichalis, D.E. Manolakos</i>	6.5 Investigation of residual strains development during bone cement preparation using a fiber optic sensor <i>A. Bimis, D. Karalekas</i>
16:40 pm - 17:00 pm	End of Day 1		
17:00 pm - 18:30 pm	Welcome reception		

THURSDAY, June 27, 2013

9:00 am - 16:00 pm	Registration			
9:00 am - 9:30 am	Keynote Lecture: C. Soutis, Finite element analysis of the blast response of fiber metal laminates			
9:30 am - 10:00 am	Keynote Lecture: E. Zschech, Nano-scale characterization of microstructure and mechanical properties of materials			
10:00 am - 10:30 am	Coffee Break			
10:30 am - 12:10 am	<u>SESSION 7 (Colossos)</u> Integrity of joints Chairman: G. Kotsikos	<u>SESSION 8 (Asclipios)</u> Non-destructive testing of composite materials (Part I) Chairwoman: D. Stuebing	<u>SESSION 9 (Delphi)</u> Integrity of engineering materials and structures: Design, modeling, assessment, monitoring (Part I) Chairman: G. Savaidis	<u>SESSION 10 (Ialysos)</u> Coating's applications Chairmen: Fr. Klocke, K-D. Bouzakis
10:30 am - 10:50 am	7.1 A model for corrosion fatigue crack growth in Al-Mg-Zn alloy welds <i>G. Kotsikos, N. Holroyd</i>	8.1 Quality assurance concepts for adhesive bonding of aircraft composite structures by extended NDT <i>M. Hoffmann, D. Stübing, K. Brune, S. Dieckhoff, S. Markus</i>	9.1 Discrimination of acoustic emission source mechanism <i>J. Bohse</i>	10.1 Assessment of coatings' brittleness by nano-impact tests <i>K-D Bouzakis, G. Skordaris, S. Gerardis, E. Bouzakis</i>
10:50 am - 11:10 am	7.2 Assessment of the fatigue life of cyclically loaded steel plates incorporating stud welds <i>S. Ross, J. Butler, A. Stephem, G. Kotsikos</i>	8.2 The challenge of sample manufacturing for development of NDT methods for weak bond inspection <i>E. Rau, G. Heichler, K. Brune, K.I. Tserpes</i>	9.2 Continuous integrity monitoring of large transportation products using acoustic emission <i>P. Tscheliesnig, G. Savaidis, I. Baran, A. Jagenbrein</i>	10.2 Grain size effect of pre- and post-coating treated cemented carbides on PVD films adhesion and mechanical properties <i>K-D Bouzakis, N. Michailidis, G. Skordaris, A. Tsouknidas, S. Makrimallakis, E. Bouzakis</i>
11:10 am - 11:30 am	7.3 Fracture behavior of bimetallic Al-Cu LBW joints <i>G.N. Haidemenopoulos, A.D. Zervaki, H. Kamoutsi, E. Hontzopoulos, F. Mangana</i>	8.3 The combine effects of pre-bond contamination, accelerated ageing and high temperature on the mode-I fracture toughness of CFRP bonded joints <i>D.N. Markatos, K.I. Tserpes, A.N. Chamos, S.G. Pantelakis</i>	9.3 Low cycle fatigue behavior of butt-welded joints: experiments and numerical simulations <i>E. Lang, J. Rudolph, H.T. Beier, M. Vormwald</i>	10.3 Investigation of the corrosion fatigue performance of coated and uncoated high alloyed steel <i>N. Michailidis, F. Stergioudi, G. Maliaris, A. Tsouknids</i>
11:30 am - 11:50 am	7.4 Investigation of safety requirements on electron beam welded steel constructions <i>G. Golisch, S. Ufert, P. Langerberg, S. Munstermann, W. Bleck, S. Olschok, U. Reisgen</i>	8.4 Pre-bond quality assurance of CFRP surfaces by using optically stimulated electron emission <i>K. Brune, L. Lima, M. Noeske, K. Thiel, C. Tornow, S. Dieckhoff, H. Hoffman, D. Stuebing</i>	9.4 Fatigue life assessment of thin welded joints based on local approaches <i>M. Malikoutsakis, G. Savaidis</i>	10.4 Nanocomposite Painting System - Improvement of Tribological Properties <i>M. Pazderová, V. Jeníček, L. Diblíková, M. Valeš, J. Kudláček, F. Herrmann</i>

11:50 am - 12:10 am	7.5 Fatigue testing of pre-corroded 2198 T8 FSW aluminum alloy with and without LoP defect <i>M. Papadopoulos, S.G. Pantelakis</i>	8.5 CFRP surface contamination detection by an electronic nose device for adhesive bonding quality assessment in lightweight aircrafts <i>P. Di Palma, S. De Vito, M. Miglietta, E. Massera, G. Fattoruso, B. Mastroianni, G. Di Francia</i>	9.5 Finite element schemes for combined thermal and pressure shock loading of functionally graded configurations <i>T.K. Papathanasiou, A.M. Nikolarakis, A. Savaidis, K. Kalkanis</i>	10.5 Influence of gear geometry on wear behavior of PVD-coated gears <i>A. Bagh, C. Brecher, M. Brumm</i>
12:10 am - 13:10 am	Lunch Break			
13:10 am - 15:10 pm	SESSION 11 (Colossos) Characterization of fracture (Part II) Chairman: H. Atapek	SESSION 12 (Asclipios) Active functional surfaces and self-healing coatings Chairman: M. Zheludkevich	SESSION 13 (Delphi) Integrity of engineering materials and structures: Design, modeling, assessment, monitoring (Part II) Chairman: G. Savaidis	SESSION 14 (Ialysos) Structural materials: nanoscale modifiers in advance composites Chairwoman: L. Guadagno
13:10 am - 13:30 pm	11.1 Investigation of dry sliding wear behavior of GG20 and GG25 cast iron materials used for valves <i>S. Polat, S.H. Atapek, E. Turedi, Z. Taslicukur, G.S. Altug</i>	12.1 Nanocontainer-based feedback active coatings: advantages and drawbacks <i>D.G. Shchukin</i>	13.1 Fully coupled thermoelastic analysis of a functionally graded half-space subjected to thermal shock on the boundary <i>A.M. Nikolarakis, T.K. Papathanasiou, A. Savaidis</i>	14.1 Healing agent for the activation of self-healing function at low temperature <i>P. Longo, A. Mariconda, L. Guadagno, M. Raimondo</i>
13:30 pm - 13:50 pm	11.2 Characterization of tensile fracture of a ferritic-pearlitic dual phase steel processed in different conditions <i>S. Polat, S.H. Atapek, S. Gumus, E. Turedi, G. Ozer</i>	12.2 Irreversible thermochromic paints and shock-detection paints <i>M. Gaudon, V. Blanco-Gutierrez, A. Demourgues</i>	13.2 Design of heavy duty parabolic front leaf-springs with respect to kinematics and stress behavior <i>S. Karditsas, G. Savaidis, M. Malikoutsakis</i>	14.2 Effect of conductive nanofiller structures on electrical properties of epoxy composite for aeronautic applications <i>M. Raimondo, V. Vittoria, L. Vertuccio, K. Lafdi, B. DeVivo, P. Lamberti, G. Spinelli, V. Tucci</i>
13:50 pm - 14:10 pm	11.3 Microstructural characterization of wear of Arc-PVD Ti and Ti6Al4V coated austenitic stainless steels in Ringer's solution <i>E. Erisir, E. Suadiye, S. Gumus</i>	12.3 Chitosan as a smart coating for corrosion protection of aluminum alloys: a review <i>J. Carneiro, J. Tedim, M.G.S. Ferreira</i>	13.3 Fatigue Assessment of Stress Peened Leaf Springs supported by Microstructural Surface Analyses <i>G. Savaidis, S. Karditsas, A. Savaidis, F. Stergioudi, N. Michailidis</i>	14.3 Electrical properties of CNFs/epoxy-amine resin for aeronautic and aerospace applications <i>M. Raimondo, V. Vittoria, L. Vertuccio, K. Lafdi, B. DeVivo, P. Lamberti, G. Spinelli, V. Tucci</i>

14:10 pm - 14:30 pm	11.4 Investigations on wear of PVD coated punches for sheet steel blanking <i>E. Erisir, M. Col, D. Kir</i>	12.4 Self-healing coatings for steel protection <i>M. Schenderlein, D.G. Shchukin</i>	13.4 Overload capacity of high transmission ratio speed reducers <i>A. Michailidis, I. Nerantzis, E. Athanasopoulos</i>	14.4 Effect of incorporation of POSS compounds on thermal and fire resistance of aeronautic resins <i>M. Raimonda, L. Bonnaud, O. Murariu, P. Dubois, L. Guadagno</i>
14:30 pm - 14:50 pm	11.5 Failure analysis of a AISI D2 blade-base used in tire waste recycling machine <i>C. Medrea, A. Maragiannis, I. Sideris</i>	12.5 Bioactive coatings for implant applications <i>A.M. Peterson, H. Mohwald, D.G. Shchukin</i>	13.5 Environmental degradation in marine conditions of materials applied in ship structures <i>H. Buglacki, M. Saniuk</i>	
14:50 pm - 15:10 pm	11.6 Bending-Rotation tests of Niti superelastic wires used in medical applications <i>L. Bogdan, C. Nes, A. Enkelhardt, N. Faur, J.M. Patrascu</i>		13.6 Techniques to identify the dielectric properties and morphology of LCP composites in different conditions <i>L. Chao, R. Fragoudakis, M.A. Zimmerman, A. Saigal, M.N. Afsar</i>	
15:10 pm - 15:30 pm	Coffee Break			
15:30 pm - 17:30 pm	SESSION 15 (Colossos) Personal protective equipment and advanced textile fibers Chairmen: <i>T. Vu-Khanh, J. Mlynarek</i>	SESSION 16 (Asclapios) Non-destructive testing of composite materials (Part II) Chairwoman: <i>D. Stuebing</i>	SESSION 17(Delphi) Novel nanomaterials against corrosion induced fracture (Part I) Chairman: <i>C. Charitidis</i>	SESSION 18(lalysos) Structural integrity and health monitoring Chairman: <i>Chr. Papadopoulos</i>
15:30 pm - 15:50 pm	15.1 Personal protective equipment: designing against failure from an occupational health and safety perspective <i>P.E. Boileau</i>	16.1 NDT in composite bonding for aeronautic applications with laser ultrasound and infrared spectroscopy <i>R. Seyrkammer, R. Galos, B. Reitingner, J. Kasberger, P. Burgholzer</i>	17.1 Encapsulation of CaCO ₃ -producing bacterial strains into containers for cement self-restoration <i>E.K. Efthimiadou, E. Milioni, I.A. Kartsonakis, G. S. Pappas, A. Skarmoutsou, C.A. Charitidis, G. Kordas</i>	18.1 Fibre bragg grating application for monitoring of shape memory alloy actuator <i>M. Mieloszyk, W. Ostachowich</i>
15:50 pm - 16:10 pm	15.2 Technical textiles for PPE: tendencies and recent developments <i>J. Mlynarek, O.G. Vermeerch, M. Filteau, A. Begriche, Y. Sadier, P. Dolez, D. Tessier</i>	16.2 Ultrasonic frequency analysis <i>G. Heichler, T. Grundner, E. Rau</i>	17.2 Multilayer epoxy coatings including nanotraps and nanocontainers for corrosion protection of HDG steel <i>I.A. Kartsonakis, D. Perivoliotis, A.M. Routsis, C.A. Charitidis, G. Kordas</i>	18.2 Experimental detection of an early developed crack in rotor-bearing systems using an AMB <i>A. C. Chasalevris, C.A. Papadopoulos,</i>

16:10 pm - 16:30 pm	<p>15.3 Wearable technologies for PPE: power & data transmission, environment monitoring, temperature, alarms, embedded textile sensors, end-life indicators <i>O.G. Vermeersch, A. Begriche, J. Decaens, J. Mlynarek</i></p>	<p>16.3 Ultrasonic array inspection of weak bonds <i>A. Croxford, J. Potter, K. Sapountzi</i></p>	<p>17.3 Use of nano-modified adhesives to improve the environmental degradation, the mechanical and corrosive properties of bonded joints <i>G. Gkikas, D. Sioulas, A. Lekatou, A.S. Paipetis</i></p>	<p>18.3 Study of the alternation of the dynamic coefficients of short journal bearings due to wear <i>M. G. Papanikolaou, M. G. Farmakopoulos, C.A. Papadopoulos</i></p>
16:30 pm - 16:50 pm	<p>15.4 Your aircraft safety partner: belt-tech new technologies <i>R. Belanger</i></p>	<p>16.4 Developments of a laser shock wave adhesion test on bonded CFRP composites <i>R. Ecault, M. Boustie, L. Berthe, F. Touchard, L. Arnault-Chocinski, H. Voillaume, B. Campagne</i></p>	<p>17.4 The influence of nanotraps and nanocontainers into hybrid organic-inorganic coatings for corrosion protection of Mg ZK30 <i>I.A. Kartsonakis, D. Caraksis, D.A. Dragatogiannis, C.A. Charitidis, G. Kordas</i></p>	<p>18.4 The effects of waviness to piston ring and the straightness of cylinder for artificially textured and smooth piston ring <i>A. Zavos, P. Nikolakopoulos</i></p>
16:50 pm - 17:10 pm	<p>15.5 The swelling characteristics of protective glove materials to industrial contaminations <i>P.N. Tri, E. Triki, C. Gauvin, L. Tuduri, M. Azaiez, J. Lara, T. Vu-Khanh</i></p>	<p>16.5 Non-destructive assessment of CFRP composites with elastic waves, vibrothermography and EMI technique <i>P. Malinowski, T. Wandowski, L. Skarbek, W. Ostachowich</i></p>	<p>17.5 Study of corrosion of copper in industrial cooling systems <i>I.A.Kartsonakis, E.P. Koumoulos, A. Karantonis, G.Kordas, S. Dessypris, A. Monos, C.A.Charitidis</i></p>	<p>18.5 Embedded signal processing subsystem for SHM <i>T. Wandowski, P. Malinowski, A. Zak, M. Krawczuk, W. Ostachowicz, T. Luba, G. Borowik, M. Rawski, P. Tomaszewski</i></p>
17:10 pm - 17:30 pm	<p>15.6 Software to predict the chemical resistance of protective materials <i>J. Lara, D. Drolet, F. Zimmermann, A. Chollot, C.M. Hansen</i></p>	<p>16.6 Assessment of the influence of damage and contaminations on CFRP surface reflectivity in sub-THz frequency region <i>V.K. Kiseliov, V.I. Bezborodov, Y.M. Kuleshov, S.V. Mizrakh, P.K. Nesterov, O.S. Kosiak, M.S. Yanovsky, T.L. Zinenko</i></p>	<p>17.6 Dispersion effects for epoxy carbon nanotubes nanocomposites; defects or reinforcement? <i>G. Gkikas, A.S. Paipetis</i></p>	<p>18.6 A Control Model of Active Magnetic Bearings <i>M. G. Farmakopoulos, M.D. Thanou, P. G. Nikolakopoulos, C. A. Papadopoulos, A.P. Tzes</i></p>
17:30 pm	End of Day 2			
19:30 pm	Departure for Zia village			
20:30 pm	Official Dinner			

FRIDAY, June 28, 2013

9:00 am - 16:00 pm	Registration		
9:00 am - 9:30 am	Keynote Lecture: G. Guera, Graphite intercalate compounds as possible nanoscale modifiers		
9:30 am - 11:30 am	SESSION 19 (Colossos) Engineering failure analysis (Part I) Chairman: F. Berto	SESSION 20 (Asclipios) Computational mechanics and analytical methods (Part I) Chairman: G. Papanicolaou	SESSION 21 (Delphi) Engineering approaches in industry Chairman: K. Tserpes
9:30 am - 9:50 am	19.1 Fatigue strength of notched specimens made of 40CrMoV13.9 under multiaxial loading <i>F. Berto, P. Lazzarin, C. Marangon</i>	20.1 Experimental and analytical investigation of the interfacial stress field in single-lap joints between similar and dissimilar materials <i>G.C.Papanicolaou, D.V.Portan, Ch. Husiatza, D.M. Sultan</i>	21.1 Accelerated carbide tool wear failure during machining of hot work hardened tool steel: A case study <i>G. Pantazopoulos, A. Toulfatzis, A. Vazdirvanidis, A. Rikos</i>
9:50 am - 10:10 am	19.2 The peak stress method combined with 3D Finite Element models for fatigue strength assessment of fillet-welded tubular joints <i>G. Meneghetti, B. Atzori</i>	20.2 Antiplane elastic fields around circular nano-inhomogeneities with weak and strong interfaces <i>E. Gouti, M. Kattis</i>	21.2 Rolling contact fatigue of rails <i>G.N. Haidemenopoulos, A.D. Zervaki, A. Gianakopoulos</i>
10:10 am - 10:30 am	19.3 An Alternative Definition of the Shear Stress Amplitude for the C-S (Carpinteri - Spagnoli) Criterion <i>J.A. Araújo, A. Carpinteri, A/ Spagnoli, S. Vantadori</i>	20.3 Continuous modeling of the domain structure of ferroelectrics: the phase-field and the level-set models <i>A.I. Arvanitakis</i>	21.3 Determination of defects on a processed disc from S355J2 steel <i>T. V. Tzevelekou, S. Papaefthymiou, V. Panteleakou, A. Vazdirvanidis, D.C. Papamantellos, P. Sismanis</i>
10:30 am - 10:50 am	19.4 The need for Variable Amplitude Corrosion Fatigue Materials Data for Offshore Wind & Marine Renewable Energy Steel Support Structures <i>FB Brennan</i>	20.4 Strain based delamination identification of composite panels <i>G.N. Labeas. C. Katsikeros</i>	21.4 Effect of cold spray deposition of similar material on fatigue behavior of aluminum 6082 <i>A. Moridi, S.M. Hassani-Gangaraj, M. Guagliano, S. Vezzu</i>
10:50 am - 11:10 am	19.5 Fracture mechanics based assessment of fatigue of welded joints under shear loading <i>E. Shams, M. Malikoutsakis, G. Savaidis, M. Vormwald</i>	20.5 Influence of imperfect interfaces on stress concentration in planar cosserat elasticity <i>E. Gouti, M. Kattis</i>	21.5 Failure analysis and fatigue life assessment of a redesigned aircraft landing gear component <i>D. I. Panagiotopoulos, K. Stamoulis</i>
11:10 am - 11:30 am	19.6 Progressive damage modeling of 3D woven composites <i>A.S. Koumpias, K.I. Tserpes</i>	20.6 Optimal control of a smart beam by using a Luenberger observer <i>C. Onat , M. Sahin, Y. Yaman</i>	21.6 Elastic modulus of graphene reinforced nanocomposite <i>K.N. Spanos, S.K. Georgantzinis, N.K. Anifantis</i>
11:30 am - 11:45 am	Coffee Break		

11:45 am - 13:45 pm	SESSION 22 (Colossos) Engineering failure analysis (Part II) Chairman: F. Berto	SESSION 23 (Asclipios) Novel nanomaterials against corrosion induced fracture (Part II) Chairman: C. Charitidis	SESSION 24 (Delphi) Novel engineering approaches on composite materials (Part II) Chairman: T. Kermanidis
11:45 am - 12:05 pm	22.1 Forming limit prediction of parts formed by Incremental Sheet Forming <i>G.N. Labeas, T. Kermanidis, S.G. Pantelakis</i>	23.1 Orientation effects in nanomechanical properties of Ni: an experimental study <i>D.A. Dragatogiannis, E.P. Koumoulos, M. Robinson, C.A. Charitidis</i>	24.1 The role of the TiO ₂ nanotubes on the titanium- polymer interfacial pull-out mechanism <i>G.C.Papanicolaou, D.V.Portan, S. Economidou</i>
12:05 pm - 12:25 pm	22.2 Fatigue life assessment of hydraulic units shafts <i>N. Radu, P. Nicolai, M. Liviu, S. Muntean</i>	23.2 Nanoindentation analysis of light-weighted magnesium and aluminum alloys <i>C.A. Charitidis, A. Skarmoutsou, E.P. Koumoulos, G. Kotsikos, D.I. Pantelis, M. Robinson, S.G. Pantelakis</i>	24.2 Recent developments in the repair of steel pipes using composite materials <i>A. G. Gibson, J. M. Linden, G. Kotsikos</i>
12:25 pm - 12:45 pm	22.3 The fatigue limit: An analytical solution to a Monte- Carlo problem <i>A. Cetin, G. Härkegård, A. Naess</i>	23.3 Synthesis, structural and nanomechanical properties of cobalt based thin films <i>C.A. Charitidis, E.P. Koumoulos, V.P. Tsikourkitoudi, I.A. Kartsonakis, N. Papadopoulos, E. Hristoforou</i>	24.3 Assessment of the imperfect bonding of adhesively bonded U- joints using ultrasonic inspection <i>C.V.Katsiropoulos, S.G. Pantelakis</i>
12:45 pm - 13:45 pm	Lunch Break		
13:45 am - 14:45 pm	SESSION 25 (Colossos) Engineering failure analysis (Part III) Chairman: F. Berto	SESSION 26 (Asclipios) Novel nanomaterials against corrosion induced fracture (Part III) Chairman: C. Charitidis	
13:45 pm - 14:05 pm	25.1 Residual stresses influences on structural integrity of steam turbine blades <i>M. Newby, M. N. James, D.G. Hattingh</i>	26.1 Effect of pressure growth on MOVPE BGaN films <i>M. Bouchaour, N. Maloufi, G. Orsal, S. Gautier, A. Ould- abbas, N.E. Chabane Sari, A. Ougazzaden</i>	
14:05 pm - 14:25 pm	25.2 Fracture behaviour of slightly hypereutectoid steel with different degree of spheroidization <i>J. Toribio, B. González, J.C. Matos</i>	26.2 Corrosion investigation and evaluation of mechanical and structural properties of powder coatings for industrial-domestic applications <i>C.A. Charitidis, E.P. Koumoulos, I.A. Kartsonakis, G. Kordas, G. Vlachakis, M. Vlachakis</i>	
14:25 pm - 14:45 pm		26.3 Effective mechanical properties of BN monolayer <i>K. Kariotis, S.K. Georgantzinis, G.I. Giannopoulos, N.K. Anifantis</i>	

14:45 pm - 15:15 pm	Coffee Break		
15:15 pm - 16:55 pm	SESSION 27(Colossos) Microstructural approaches of engineering materials Chairman: S. Papaefthymiou	SESSION 28(Asclipios) Computational mechanics and analytical methods (Part II) Chairman: K. Tserpes	
15:15 pm - 15:35 pm	27.1 Influences of Dy content and heat treatments on the formation of hydrides in Mg-Dy alloys <i>Y. Huang, L. Yang, Z. Wang, K. U. Kainer, N. Hort</i>	28.1 An extensive cost analysis study applied to the manufacturing of an aeronautic stiffened panel <i>C.V. Katsiropoulos, S.G. Pantelakis</i>	
15:35 pm - 15:55 pm	27.2 Heat treatment structural changes of nitinol <i>D.V. Portan, G.C. Papanicolaou, M. Caposi</i>	28.2 Assessment of fatigue microcrack initiation and growth capabilities in structural steels: An interdisciplinary experimental and numerical method <i>M. Sharaf, P. Kucharczyk, A. Ma, N. Vajragupta, S. Münstermann, W. Bleck</i>	
15:55 pm - 16:15 pm	27.3 Metallographic examination of an AISI H11 mandrel of a bridge die used in hot extrusion. Case study <i>C. Medrea, A. Kalfopoulos, J. Sideris, I.Chicinas</i>	28.3 Introduction of a ductile layer to minimize thermal stresses in LDMOS packages <i>R. Fragoudakis, M.A. Zimmerman, A. Saigal</i>	
16:15 pm - 16:35 pm	27.4 Study on the evolution mechanism of oxidation and Copper diffusion and precipitation phenomena and their effect on the surface quality of steel plates <i>S. Papaefthymiou, V. Panteleakou, K. Goulas, P. Sismanis, D. D. Papamantellou</i>		
16:35 pm - 16:55 pm	27.5 Study of crack path evolution under bending corrosion fatigue strain of 316L stainless steel <i>H. Sedjal, F. Hellal</i>		
16:55 pm	End of Conference		

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