

6th International Conference on Structural Integrity and Durability - ICSID 2022 & Summer School - Fatigue and Fracture Modelling and Analysis

Centre for Advanced Academic Studies, Dubrovnik, Croatia, 19 - 23 Sep 2022



Program Overview

Monday 19 September 2022	Tuesday 20 September 2022	Wednesday 21 September 2022	Thursday 22 September 2022	Friday 23 September 2022
08:00-08:45 Registration	08:00-09:00 Registration	08:00-08:40 Registration	08:00-09:00 Registration	08:00-09:00 Registration
08:45-09:00 Summer School Opening		08:40-09:00 Conference Opening		
09:00-12:00 Multiscale Materials Modeling Siegfried Schmauder	09:00-12:00 Advanced continuum models for crack analyses in nano-sized structures Jan Sladek	09:00-09:40 Plenary Lecture Richard E. Clegg	09:00-09:40 Plenary Lecture Jan Sladek	09:00-09:40 Plenary Lecture Goran Vukelić
		09:40-11:00 Presentation Session	09:40-11:00 Presentation Session	09:40-11:00 Presentation Session
12:00-14:00 Lunch	12:00-14:00 Lunch	11:00-11:20 Coffee Break	11:00-11:20 Coffee Break	11:00-11:20 Coffee Break
14:00-17:00 Characterization of Elastic-Plastic Crack-Tip Fields and Implications for Assessing Effects of Constraint on Fracture Claudio Ruggieri	14:00-17:00 Fatigue Crack Propagation Modelling and Analysis Željko Božić	11:20-12:40 Presentation Session	11:20-12:40 Presentation Session	11:20-12:40 Presentation Session
		12:40-14:00 Lunch	12:40-14:00 Lunch	12:40-14:00 Lunch
		14:00-14:40 Plenary Lecture Mohammed H. Meliani	14:00-14:40 Plenary Lecture Sergio Baragetti	14:00-16:00 Parallel Online Session
	15:00-20:00 Registration	14:40-16:00 Presentation Session	14:40-16:00 Presentation Session	16:00-16:30 Conference Closing
	18:00-20:00 Welcome Reception	16:00-16:20 Coffee Break	16:00-16:20 Coffee Break	
		16:20-18:00 Parallel Online Session	16:20-18:00 Parallel Online Session	
		18:00-19:00 Round Table	18:00-18:30 Poster Session	
		19:30-21:00 Dubrovnik City Center Tour	19:30-22:00 Conference Dinner	

6th International Conference on Structural Integrity and Durability - ICSID 2022

& Summer School - Fatigue and Fracture Modelling and Analysis

Centre for Advanced Academic Studies, Dubrovnik, Croatia, 19 - 23 Sep 2022

Detailed Program

Tuesday, 20 September 2022

15:00 - 20:00 Registration

18:00 - 20:00 Welcome Reception
Room: Atrium

Wednesday, 21 September 2022

08:00 - 08:40 Registration

08:40 - 09:00 Conference Opening
Room: CONFERENCE HALL

09:00 - 09:40 Plenary Lecture:
LONG TERM DAMAGE MECHANISMS IN AUSTENITIC STAINLESS STEEL EXPOSED TO HIGH TEMPERATURE SERVICE
Richard E. Clegg
Room: CONFERENCE HALL
Chair: Željko Božić

09:40 - 11:00 Presentation Session
Room: CONFERENCE HALL
Chair: Željko Božić

09:40 - 10:00 THE EFFECT OF LOADING MODE ON FATIGUE CRACK INITIATION OF IN718 SUPERALLOY
J. Belan, M. Uhríček, A. Vaško, L. Pastierovičová, E. Tillová

10:00 - 10:20 BOND OF FRP RODS IN DAMAGED RC BEAMS STRENGTHENED WITH NSM TECHNIQUE
E. Bettucci, R. Capozucca, E. Magagnini

10:20 - 10:40 AXIAL FATIGUE BEHAVIOR OF NOTCHED TI-6AL-4V SPECIMENS
E.V. Arcieri, S. Baragetti, Ž. Božić

10:40 - 11:00 RESIDUAL STRESS IN PROBABILISTIC STRUCTURAL INTEGRITY ASSESSMENT OF GIRTH WELDS IN PIPING
M. Weltevreden, H. Coules, I. Hadley, Y.J. Janin

11:00 - 11:20 Coffee Break

11:20 - 12:40	Presentation Session Room: CONFERENCE HALL Chair: Josef Domitner
11:20 - 11:40	FRACTURE AND MECHANICAL BEHAVIOR OF 3D-PRINTED DENTAL RESIN M.R. Khosravani, T. Reinicke
11:40 - 12:00	FATIGUE ANALYSIS OF LASER POWDER BED FUSION ALSI10MG ALUMINIUM ALLOY PARTS SUBMITTED TO DIFFERENT HEAT TREATMENTS R. Fernandes, L. Borrego, J.S. Jesus, R. Branco, J.A.M. Ferreira, J.D.M. Costa
12:00 - 12:20	DEFECT- AND MICROSTRUCTURE-BASED CHARACTERIZATION OF THE FATIGUE BEHAVIOR OF ADDITIVELY MANUFACTURED TITANIUM ALUMINIDES M. Teschke, J. Moritz, A. Marquardt, C. Leyens, F. Walther
12:20 - 12:40	- -
12:40 - 14:00	Lunch
14:00 - 14:40	Plenary Lecture: <i>GREEN INHIBITORS FOR CORROSION CONTROL AND PROTECTION OF PIPELINES</i> <i>Mohammed Hadj Meliani</i> Room: CONFERENCE HALL Chair: Siegfried Schmauder
14:40 - 16:00	Presentation Session Room: CONFERENCE HALL Chair: Siegfried Schmauder
14:40 - 15:00	MECHANICAL PERFORMANCE OF HYBRID JOINTS OF ALUMINUM SHEETS AND LAMINATED BIRCH VENEER PLATES Z. Silvayeh, J. Domitner, J. Predan, P. Auer, E. Graf, L. Ferlič, T. Krenke, C. Sommitsch, N. Gubeljak
15:00 - 15:20	ANALYSIS OF AUTOMATIC TRACK INSPECTION SYSTEM OUTPUT OF HEAVY DUTY GLUED INSULATED RAIL JOINT TRIAL SITES I. Hoather, N.K. Mandal, M. Spiryagin
15:20 - 15:40	ON THE ENERGY RELEASE RATE FOR AN ELECTRICALLY PERMEABLE INTERFACE CRACK IN A PIEZOELECTRIC QUASICRYSTAL V. Loboda, S. Zhao, V. Govorucha, A. Sheveleva
15:40 - 16:00	FATIGUE BEHAVIOR OF THREE-SHEET AL-STEEL-STEEL DISSIMILAR RESISTANCE SPOT WELDS FOR AUTOMOTIVE APPLICATIONS L. Shi, J. Xue, J. Kang, A.S. Haselhuhn, H. Ghassemi-Armaki, B.E. Carlson
16:00 - 16:20	Coffee Break

16:20 - 18:00 Parallel Online Session - CONFERENCE HALL

ON-SITE and WEB

Chair: Jidong Kang

- 16:20 - 16:40 **MECHANISMS OF SIMULTANEOUSLY HIGH STRENGTH AND TOUGHNESS OF CONTINUOUS NANOFIBERS AND THEIR COMPOSITES**
Y. Dzenis
- 16:40 - 17:00 **THE CONSTRAINT CORRECTED FRACTURE CRITERION BASED ON THE J-A CONCEPT**
Y. Matvienko
- 17:00 - 17:20 **VERY HIGH CYCLE FATIGUE STRENGTH ASSESSMENT AT ELEVATED TEMPERATURE OF STRUCTURES WITH HIGH STRESS GRADIENTS**
F. Himmelbauer, G. Winter, B. Seisenbacher, F. Grün, C. Kiesling
- 17:20 - 17:40 **BUCKLING ANALYSIS OF CORRUGATED SANDWICH STRUCTURES: A RVE BASED MULTISCALE APPROACH**
T.V.D. Adithya, J. Prasun
- 17:40 - 18:00 **FATIGUE BEHAVIOUR OF A PROGRESSIVE SECONDARY A357 ALLOY WITH HIGHER IRON CONTENT IN A CHLORIDE ENVIRONMENT**
L. Pastierovičová, L. Kuchariková, E. Tillová, M. Chalupová, J. Belan, A. Vaško, M. Uhrčík

16:20 - 18:00 Parallel Online Session - Room 4

ON-SITE and WEB

Chair: Peter Monka

- 16:20 - 16:40 **EFFECTS OF CREEP OF THE SALT ROCK FORMATION ON THE FAILURE OF CEMENT SHEATH INTEGRITY**
H. Yang, Y. Bu, S. Jing, L. Zhao, S. Guo, H. Liu
- 16:40 - 17:00 **EXPERIMENTAL DETERMINATION OF FATIGUE CRACK GROWTH PARAMETERS OF CLASS 10.9 STEEL BOLT OF WIND TURBINE AT HIGH LOAD RATIO**
I. Shakeri, H.K. Danielsen, M.A. Eder
- 17:00 - 17:20 **INVESTIGATION OF MICROPITTING AND WEAR IN ROLLING/SLIDING CONTACTS OPERATING UNDER BOUNDARY LUBRICATION CONDITIONS**
M. Hasan, O.D. Mohammed, C. Kolar, M. Björling, R. Larsson
- 17:20 - 17:40 **DAMAGE DESCRIPTOR INCORPORATION IN THE MICROMECHANICAL MODELLING OF ADDITIVELY ANUFACTURED HIGH ENTROPY ALLOYS**
L. Vallejo, M. Lindroos, T. Suhonen, J. Metsajoki, Y. Ge, T. Andersson, A. Laukkanen
- 17:40 - 18:00 -
-

**18:00 - 19:00 Round table:
Preparation of papers for Proceedings PSI and Special Issue EFA**

19:30 - 21:00 Dubrovnik City Center Tour

Thursday, 22 September 2022

08:00 - 09:00 Registration

09:00 - 09:40 Plenary Lecture:

CRACK ANALYSES IN NANO-SIZED STRUCTURES UNDER A JOULE HEATING

Jan Sladek

Room: CONFERENCE HALL

Chair: Mohammad Reza Khosravani

09:40 - 11:00 Presentation Session

Room: CONFERENCE HALL

Chair: Mohammad Reza Khosravani

09:40 - 10:00 **EVALUATION OF THE MACHINABILITY OF CW614N BRASS ALLOY**

P.P. Monka, K. Monkova, G. Pantazopoulos, A. Toulfatzis, S. Papadopoulou

10:00 - 10:20 **PROPOSITION OF A MULTIAXIAL FATIGUE DAMAGE MODEL FOR DESIGNING MARINE SHAFT LINE**

C. Guellec, C. Doudard, L. Jian, B. Leveil, A. Ezanno, S. Calloch

10:20 - 10:40 **DETERMINATION OF ADEQUATE REFERENCE MISSIONS FOR THE RELIABLE DESIGN OF AUTOMOTIVE STRUCTURES FROM REAL-LIFE LOAD DATA**

E. Baroux, P. Pamphile, A. Constantinescu, B. Delattre

10:40 - 11:00 **A STUDY OF DIFFERENT CONSIDERATIONS TO MEET GEAR DESIGN REQUIREMENTS**

O.D. Mohammed

11:00 - 11:20 Coffee Break

11:20 - 12:40 Presentation Session

Room: CONFERENCE HALL

Chair: Jan Sladek

11:20 - 11:40 **GEOMETRY EFFECT ON THE STATIC STRENGTH OF CURVED COMPOSITE BONDED JOINTS**

P.A.R. Ferreira, I.J. Sánchez-Arce, R.D.S.G Campilho, D.C. Gonçalves

11:40 - 12:00 **FATIGUE LIFE ASSESSMENT OF IMPERFECTIVE CAST STEEL COMPONENTS IN THE MEDIUM-CYCLE REGIME BY STRESS- AND ENERGY-BASED CONCEPTS**

M. Horvath, M. Stoschka, M. Oberreiter

12:00 - 12:20 **THE INFLUENCE OF METAL DISCS INSERTED IN EXPLOSIVES ON EFPS GENERATION**

L.C. Matache, A.N. Rotariu, F. Dîrloman, M. Ungureanu, F.I. Pană

12:20 - 12:40 **INFLUENCE OF THE TIME FACTOR AND HEAT TREATMENT ON MECHANICAL PROPERTIES OF AL-MG-SI-CU ALLOY WELDED JOINTS IN CORROSIVE ENVIRONMENT**

L. Nyrkova, L. Goncharenko, S. Osadchuk, T. Labur, M. Yavorska

12:40 - 14:00 Lunch

14:00 - 14:40	Plenary Lecture: Ti6Al4V FATIGUE RESISTANCE UNDER DIFFERENT STRESS GRADIENTS IN AGGRESSIVE ENVIRONMENTS Sergio Baragetti Room: CONFERENCE HALL Chair: Luis Filipe Borrego
14:40 - 16:00	Presentation Session ON-SITE and WEB Chair: Luis Filipe Borrego
14:40 - 15:00	FATIGUE BEHAVIOUR OF NICR-TYPE OF AUSTENITIC NODULAR CAST IRON A. Vaško, M. Uhrčík, J. Belan, V. Kaňa
15:00 - 15:20	THE EFFECT OF RISK VOLUME ON THE FATIGUE LIFE OF STAINLESS STEELS 304L SUBJECTED TO HIGH FREQUENCY LOADING K. Kozáková, J. Klusák, S. Seitl
15:20 - 15:40	COMPARISON OF CRACK GROW RATES OF AISI 304 AND AISI 316 IPE BEAMS IN THREE-POINT BENDING T. Juhászová, P. Miarka, S. Seitl
15:40 - 16:00	NOTCH EFFECT ON VERY HIGH CYCLE FATIGUE PROPERTY AND LIFE PREDICTION A. Nehila, W. Li
16:00 - 16:20	Coffee Break
16:20 - 18:00	Parallel Online Session - CONFERENCE HALL ON-SITE and WEB Chair: Liviu-Cristian Matache
16:20 - 16:40	THE PARAMETER ESTIMATION FROM THREE-POINT BENDING TESTS I. Kožar, T. Sulovsky, M. Plovanič, Ž. Božič
16:40 - 17:00	FRACTURE OF INHOMOGENEOUS BEAM WITH THREE PARALLEL LENGTHWISE CRACKS V. Rizov
17:00 - 17:20	RELIABILITY OF PIPELINE GIRTH WELDS UNDER SUPERIMPOSED CYCLIC INTERNAL PRESSURE AND STATIC BENDING LOADING CONDITIONS A.Y. Dakhel, Z. Koncsik, J. Lukács
17:20 - 17:40	NUMERICAL ESTIMATION OF THE LOAD HISTORY DUE TO BALLISTIC IMPACTS WITH BULLET SPLASH R. Andreotti, M. Quercia, A. Casaroli, M. Boniardi
17:40 - 18:00	ANALYSIS OF BI-ADHESIVE SINGLE-LAP JOINTS UNDER AN IMPACT TENSILE LOAD L.A.S. Maia, R.D.S.G. Campilho, I.J. Sánchez-Arce, K. Madani

16:20 - 18:00 Parallel Online Session - Room 4

ON-SITE and WEB

Chair: Mohammed Rabius Sunny

16:20 - 16:40 **COMPUTATIONAL AND EXPERIMENTAL DISTINCTIVE FEATURES OF CRACK GROWTH RATE TESTS UNDER TMF CONDITIONS**

A. Sulamanidze, V. Shlyannikov, D. Kosov

16:40 - 17:00 **ADHESIVE MATERIAL EFFECT ON THE TENSILE RESPONSE OF ALUMINUM TUBULAR JOINTS**

J.E.S.M. Silva, I.J. Sánchez-Arce, R.D.S.G Campilho, R.D.F. Moreira

17:00 - 17:20 **MIXED-MODE FRACTURE BEHAVIOUR OF STRUCTURAL ADHESIVES BY THE CRACKED-LAP SHEAR SPECIMEN**

R.B.P. Barros, R.D.S.G. Campilho, I.J. Sánchez-Arce, J.M.M. Dionísio, K. Madani

17:20 - 17:40 **TRANSIENT RESPONSE OF COLLINEAR GRIFFITH CRACKS IN A FUNCTIONALLY GRADED STRIP BONDED BETWEEN DISSIMILAR ELASTIC STRIPS UNDER SHEAR IMPACT LOADING**

R. Singh

17:40 - 18:00 -

-

18:00 - 18:30 Poster Session

Room: HALL

THE FATIGUE LIFE AND FRACTURES OF AUSTENITIC STEEL AISI 304 AFTER THE CHEMICAL-THERMAL TREATMENT

M. Uhrčík, P. Palček, J. Belan, A. Vaško, L. Pastierovičová, L. Kuchariková, V. Zatkalíková

FATIGUE LIFE ASSESSMENT OF ELECTRIC CAR BATTERIES

I. Rački, Ž. Božić

I+II MIXED-MODE FATIGUE CRACK PROPAGATION UNDER COMBINATION OF TENSILE LOADING AND CORROSION IN A HSS SPECIMEN

L. Malíková, P. Doubek, S. Seitl

INFLUENCE OF NOTCH AND LOAD DIRECTION ON IMPACT TOUGHNESS OF FIBER REINFORCED COMPOSITES PRODUCED BY 3D PRINTING

M. Vaško, J. Majko, M. Handrik, A. Vaško, M. Sága

EFFECT OF PRINTING PARAMETERS ON THE TENSILE PROPERTIES OF IMPROPERLY STORED CHOPPED CARBON FIBRES REINFORCED NYLON

J. Majko, M. Vaško, M. Handrik, M. Gavlas, F. Nový

19:30 - 22:00 Conference Dinner

Friday, 23 September 2022

08:00 - 09:00 Registration

09:00 - 09:40 Plenary Lecture:

MARINE-ENVIRONMENT INDUCED FAILURE OF WELDED STEEL
Goran Vukelić

Room: CONFERENCE HALL
Chair: Puneet Kumar Patra

09:40 - 11:00 Presentation Session

Room: CONFERENCE HALL
Chair: Puneet Kumar Patra

09:40 - 10:00 **INFLUENCE OF CORROSION ON THE STRENGTH OF RIV-BONDED AND BARRIER-COATED JOINTS OF ALUMINUM AND MAGNESIUM SHEETS**

J. Domitner, J. Stippich, P. Auer, N. Godja, Z. Silvayeh, C. Pichler, L. Payrits, A. Schindel, R. Vallant, C. Sommitsch

10:00 - 10:20 **INVESTIGATION OF THE EFFECT OF PITTING CORROSION ON THE FATIGUE STRENGTH DEGRADATION OF STRUCTURAL STEEL USING A SHORT CRACK MODEL**

S.A. Elahi, F.M. Sofiani, S. Chaudhuri, J.A.B. Molina, N.O. Larrosa, W. De Waele

10:20 - 10:40 **AN ANALYSIS OF ULTRASONIC CAVITATION EROSION BASED ON THE STRUCTURAL-TIME APPROACH**

I. Smirnov, N. Mikhailova, B. Yakupov, G. Volkov

10:40 - 11:00 **EFFECT OF GALVANOSTATIC ANODIC POLARIZATION ON HYDROGEN EVOLUTION RATE AND RESIDUAL FATIGUE STRENGTH OF MAGNESIUM IMPLANTS**

N. Wegner, J. Vergin, F. Walther

11:00 - 11:20 Coffee Break

11:20 - 12:40 Presentation Session

Room: CONFERENCE HALL
Chair: George Pantazopoulos

11:20 - 11:40 **THE EFFECT OF LONG-TERM OPERATION ON FATIGUE AND CORROSION FATIGUE CRACK GROWTH IN STRUCTURAL STEELS**

O. Zvirko, O. Venhryniuk, H. Nykyforchyn

11:40 - 12:00 **A NUMERICAL STUDY ON TENSILE STRESS CONCENTRATION IN 3D SEMI-ELLIPSOIDAL CORROSION PITS**

F.M. Sofiani, S.A. Elahi, S. Chaudhuri, K. Hectors, W. De Waele

12:00 - 12:20 **DIFFERENT ORIENTATION OF SHEAR WALL IN A REINFORCED CONCRETE STRUCTURE TO CONTROL DRIFT AND DEFLECTION**

C.Z.B. Zahid, S. Alam, A. Fahik, M.I. Khan, T. U. Mohammed

12:20 - 12:40 -
-

12:40 - 14:00 Lunch

14:00 - 16:00 Parallel Online Session - CONFERENCE HALL

ON-SITE and WEB

Chair: Yuris Dzenis

- 14:00 - 14:20 **STRENGTH PREDICTION MODELING AND STRAIN BEHAVIOR STUDY OF PLA PRINTED PARTS WITH OPTIMIZED AM PARAMETERS**
M. Algarni
- 14:20 - 14:40 **INVERSE ANALYSIS METHOD OF MOLTEN SHAPE BY DEEP LEARNING - PARAMETER DETERMIANTION OF A DOUBLE-ELLIPSOIDAL HEAT SOURCE MODEL FOR WELD RESIDUAL STRESS ANALYSIS BY USING ARTIFICIAL NEURAL NETWORK**
K. Ishihara, T. Meshii
- 14:40 - 15:00 **NONLINEAR GUIDED WAVE BASED DETECTION OF DELAMINATION IN FRP LAMINATES**
S. Kumar, M.R. Sunny
- 15:00 - 15:20 **A SMOOTH PARTICLE HYDRODYNAMICS FRAMEWORK FOR CALCULATING MODE-I STRESS INTENSITY FACTORS**
K.V. Ganesh, M.R.I. Islam, P.K. Patra
- 15:20 - 15:40 **EFFECT OF SEAWATER EXPOSURE ON STRUCTURAL INTEGRITY OF GLASS FIBER-REINFORCED POLYMER COMPOSITES**
H. Vidinha, R. Branco, M.A. Neto, A.M. Amaro, P. Reis
- 15:40 - 16:00 -
-

14:00 - 16:00 Parallel Online Session - Room 4

ON-SITE and WEB

Chair: Jana Prasun

- 14:00 - 14:20 **NUMERICAL EVALUATION OF IMPACT-LOADED DOUBLE-LAP JOINTS BY COHESIVE MODELLING**
L.A.R. Gomes, R.D.S.G. Campilho, I.J. Sánchez-Arce, K. Madani
- 14:20 - 14:40 **COMPOSITE DOWEL'S FATIGUE CRACK EVALUATION WITH LOADINH PATTERNS' EFFECT**
Z. Xiong, C. Zhao, W. Li, Z. Liang
- 14:40 - 15:00 **MULTILAYERED INHOMOGENEOUS BEAM UNDER RELAXATION: AN ANALYTICAL DELAMINATION INVESTIGATION**
V. Rizov
- 15:00 - 15:20 **NUMERICAL ANALYSIS OF THE ADHESIVE EFFECT ON THE BEHAVIOR OF T-ADHESIVE JOINTS**
J.P.M. Lopes, I.J. Sánchez-Arce, R.D.S.G Campilho, R.J.B. Rocha
- 15:20 - 15:40 **APPLICATION OF COLD EXPANSION MECHANICAL SURFACE TREATMENT TO COLD FORGING DIES AGAINST LOW CYCLE FATIGUE**
M.B. Toparlı, S. Doğan, S. Yurtdaş, T. Aydın, U. İnce
- 15:40 - 16:00 **COMPARATIVE WEAR PERFORMANCE OF TIN COATED AND SHOT PEENED PIERCING PUNCHES USED IN NUT PRODUCTION BY COLD FORGING**
F.C. Ağarar, H. Sandallı, M.B. Toparlı, U. İnce, İ.E. Saklakoğlu

16:00 - 16:30 Conference Closing

Room: CONFERENCE HALL

6th International Conference on Structural Integrity and Durability - ICSID 2022 & Summer School - Fatigue and Fracture Modelling and Analysis

Centre for Advanced Academic Studies, Dubrovnik, Croatia, 19 - 23 Sep 2022

Conference Venue

The address of the Conference Venue:
CENTRE FOR ADVANCED ACADEMIC STUDIES
Don Frana Bulica 4
20000 Dubrovnik
CROATIA

