

3rd International Conference on Structural Integrity and Durability - ICSID 2019 & Summer School - Fatigue and Fracture Modelling and Analysis

Centre for Advanced Academic Studies

Dubrovnik, Croatia, June 3 - 7, 2019

Preliminary Program Overview

Monday, 3/June/2019	Tuesday, 4/June/2019	Wednesday, 5/June/2019	Thursday, 6/June/2019	Friday, 7/June/2019
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	09:00-12:00 Multiscale Materials Modeling - Recent developments and applications Siegfried Schmauder	08:40-09:00 Conference Opening	09:00-09:40 Plenary Lecture: Yury Matvienko	09:00-09:40 Plenary Lecture: Aleksandar Sedmak
09:00-12:00 Fundamentals of Two-parameter Elastic and Elastic-plastic Fracture Mechanics Yury Matvienko		09:00-09:40 Plenary Lecture: Željko Domazet		
12:00-14:00 Lunch	12:00-14:00 Lunch	09:40-10:20 Plenary Lecture: Luca Susmel	10:20-10:40 Coffee Break	10:20-10:40 Coffee Break
14:00-17:00 Multiaxial fatigue assessment of metallic components Luca Susmel	14:00-17:00 Engineering Failure Analysis Richard E. Clegg	10:20-10:40 Coffee Break	10:40-12:00 Parallel Sessions LMH.1, FEM.1, AMO	10:40-12:00 Parallel Sessions ACS, RIE
	15:00-20:00 Registration	10:40-12:00 Parallel Sessions LMH.1, FEM.1, AMO	12:00-14:00 Lunch	10:40-12:00 Parallel Sessions SIA, FIA
	18:00-20:00 Welcome Reception	12:00-14:00 Lunch	14:00-15:20 Parallel Sessions LMH.2, FEM.2, CEE	12:00-13:30 Lunch
	20:00-21:00 Round table	14:00-15:20 Parallel Sessions LMH.2, FEM.2, CEE	15:20-15:40 Coffee Break	13:30-14:00 Conference Closing
		15:20-15:40 Coffee Break	15:20-15:40 Coffee Break	
		15:40-17:00 Parallel Sessions ATE, RSE, FFC	15:40-18:00 Poster Session	
		17:30- ... Dubrovnik City Center Tour	19:30- ... Conference Dinner	

3rd International Conference on Structural Integrity and Durability - ICSID 2019

Centre for Advanced Academic Studies

Dubrovnik, Croatia, June 4 - 7, 2019

Detailed Program

Tuesday, 4/June/2019

15:00 - 20:00 **Registration**

18:00 - 20:00 **Welcome Reception**

Room: Atrium

20:00 - 21:00 **Round table:**

Room: LECTURE ROOM 4 - 1st floor

Wednesday, 5/June/2019

08:00 - 08:40 **Registration**

08:40 - 09:00 **Conference Opening**

Room: CONFERENCE HALL - ground floor

09:00 - 09:40 **Plenary Lecture:**

FATIGUE CRACK RETARDATION AND REPAIR METHODS

Željko Domazet

Room: CONFERENCE HALL - ground floor

Chair: Željko Božić

09:40 - 10:20 **Plenary Lecture :**

FATIGUE ASSESSMENT OF PLAIN AND NOTCHED 3D-PRINTED PLA

Luca Susmel

Room: CONFERENCE HALL - ground floor

Chair: Siegfried Schmauder

10:20 - 10:40 **Coffee Break**

10:40 - 12:00 **Low, medium and high cycle fatigue (LMH.1)**

Room: CONFERENCE HALL

Chair: Shigenobu Kainuma

10:40 - 11:00 **INFLUENCE OF LOCAL RESIDUAL STRESSES ON FATIGUE CRACK INITIATION**

M. Mlikota, S. Schmauder

11:00 - 11:20 **AN ATOMISTIC AND MICROSTRUCTURE BASED APPROACH FOR FATIGUE CRACK NUCLEATION LIFE PREDICTION**

Z. Zhang, X. Wu, K. Chen

11:20 - 11:40 **EVALUATING A STARTING POINT OF STAIRCASE METHOD USING PASSIVE INFRA-RED THERMOGRAPHY**

R. Prochazka, P. Konopik

11:40 - 12:00 **3D SCANNING IMPLEMENTATION IN STRESS ANALYSIS OF A TOTAL HIP PROSTHESIS**

M. Babić, O. Verić, Ž. Božić, A. Sušić

10:40 - 12:00 Finite elements methods and their application (FEM.1)

Room: LECTURE ROOM 4

Chair: Terje Rølvåg

- 10:40 - 11:00 MICROSTRUCTURE-BASED ANALYSIS OF DEFORMATION AND FRACTURE IN METAL-MATRIX COMPOSITE MATERIALS
R. Balokhonov, V. Romanova, A. Kulkov, R. Bakeev, S. Kulkov
- 11:00 - 11:20 FRACTURE TOUGHNESS OF ZIRCONIA OXIDE CERAMICS DOUBLE-CANTILEVER SPECIMENS SUBJECTED TO WEDGE SPLITTING TEST
M. Eremin, E. Deryugin, S. Schmauder
- 11:20 - 11:40 A PHASE-FIELD MODELLING OF STRESS-INDUCED HYDRIDE FORMATION
W. Reheman, N. Claudio, M. Fisk, C. Bjerken
- 11:40 - 12:00 FINITE ELEMENT ANALYSIS OF GEAR TOOTH FRACTURE
A. Tsiamak, S. Georgantzinis, N. Anifantis

10:40 - 12:00 Analytical Models (AMO)

Room: LECTURE ROOM 5

Chair: Sérgio Souto Maior Tavares

- 10:40 - 11:00 A GENERALIZED CRACK GROWTH MODEL FOR SHORT AND LONG CRACK GROWTH REGIMES
D. Bang, A. Ince
- 11:00 - 11:20 A QUALITATIVE ANALYSIS OF THE INITIATION TOUGHNESS DEGRADATION OF SERVICE EXPOSED ASTM A-515 GR. 65 MATERIAL BY QUANTIFYING THE CRITICAL STRAIN ENERGY DENSITY BY THE SMALL PUNCH TEST METHOD USING A FINITE ELEMENT APPROACH
S. Grewar, D. Hattingh, W. Rall, I. Wedderburn, C. Orsmond
- 11:20 - 11:40 DYNAMICS OF RAILWAY-TRACK UNDER A MOVING DISTRIBUTED MASS
Y. Liu, Y. Zhang
- 11:40 - 12:00 XFEM BASED ANALYSIS OF FATIGUE CRACK GROWTH IN DAMAGED WING-FUSELAGE ATTACHMENT LUG
A. Solob, A. Grbović, Ž. Božić, S.A. Sedmak

12:00 - 14:00 Lunch**14:00 - 15:20 Low, medium and high cycle fatigue (LMH.2)**

Room: CONFERENCE HALL

Chair: Luca Susmel

- 14:00 - 14:20 LOW CYCLE FATIGUE BEHAVIOR OF ALLOY 800H BASE AND WELD METALS AT 700°C AND 750°C
S.J. Kim, S.G. Lee, F.E. Saputra, R. T. Dewa, W.G. Kim, E.S. Kim
- 14:20 - 14:40 EXPERIMENTS & MODELLING OF FRACTURE BEHAVIOUR IN COLD DRAWN PEARLITIC STEELS
H. Sahasrabudde, K. Jacob, S. Bhusare, N.J. Balila
- 14:40 - 15:00 NUMERICAL COMPUTATIONS OF STRESS INTENSITY FACTORS FOR TWO PENNY SHAPED CRACKS IN ELASTIC SOLID
D. Đukić, G. Kastratović, A. Grbović, N. Vidanović, A. Sedmak
- 15:00 - 15:20 MULTIAXIAL CYCLIC BEHAVIOUR AND FATIGUE MODELLING OF FORGED AZ80 MG ALLOY
A. Gryguc, S.B. Behraves, S.K. Shaha, H. Jahed, M. Wells, B. Williams, X. Su

14:00 - 15:20 Finite elements methods and their application (FEM.2)

Room: LECTURE ROOM 4

Chair: Uenishi Koji

- 14:00 - 14:20 FATIGUE ANALYSIS OF HIGH PERFORMANCE RACE ENGINES
T. Rølvåg, B. Haugen, M. Bella, F. Berto
- 14:20 - 14:40 MESOSCALE DEFORMATION-INDUCED SURFACE ROUGHENING AS AN EARLY PRECURSOR OF PLASTIC STRAIN LOCALIZATION AND FRACTURE
V. Romanova, R. Balokhonov, E. Emelianova
- 14:40 - 15:00 DESCRIPTION OF SHORT FATIGUE CRACK PROPAGATION UNDER LOW CYCLE FATIGUE REGIME IN SANICRO 25 STEEL
L. Trávníček, V. Mazánová, L. Náhlík, J. Poduška, P. Hutař
- 15:00 - 15:20 DEPENDENCE OF THE PRIMARY STABILITY OF THE DENTAL IMPLANT FROM THE DIRECTION OF THE OCCLUSIVE LOAD
I. Dashevskiy

14:00 - 15:20 Corrosion, environmentally enhanced degradation and cracking, corrosion fatigue (CEE)

Room: LECTURE ROOM 5

Chair: Neira Torić Malić

- 14:00 - 14:20 ANALYSIS OF THE SUSCEPTIBILITY TO SULFIDE STRESS CORROSION CRACKING OF 9% NICKEL LOW CARBON STEEL AND THE EFFECT OF HEAT TREATMENT
S.S.M. Tavares, R.P.C. da Cunha, C. Barbosa, R.V. Landim, J. A. Velasco
- 14:20 - 14:40 INVESTIGATION FOR MECHANICAL PROPERTIES OF CARBON STEEL IN THE PRESENCE OF AGGRESSIVE FLUIDS
B.G.N. Muthanna, M. Amara, M. Hadj Meliani, B. Aleksic, L. Milovic, Ž. Božić
- 14:40 - 15:00 STRESS BEHAVIORS FOR CORRODED SURFACE OF FATIGUE-CRACKED ORTHOTROPIC STEEL DECK
S. Kainuma, M. Yang, Y. Soo Jeong
- 15:00 - 15:20 INVESTIGATION OF THE EFFECT OF LOW TEMPERATURE AGING ON THE MECHANICAL PROPERTIES AND SUSCEPTIBILITY TO SULFIDE STRESS CORROSION CRACKING OF 22% CR DUPLEX STAINLESS STEEL WITH UNBALANCED FERRITE/AUSTENITE PROPORTION
S.S.M. Tavares, R.T. Batista, R.V. Landim, J. A. Velasco, L. Senna

15:20 - 15:40 Coffee Break

15:40 - 17:00 Advanced testing and evaluation techniques (ATE)

Room: CONFERENCE HALL

Chair: Varvara Romanova

- 15:40 - 16:00 STOCHASTIC-DETERMINISTIC PARAMETER ESTIMATION FOR FRACTURE MODELING OF FIBER REINFORCED CONCRETE
I. Kožar, D. Simonetti, N. Torić Malić
- 16:00 - 16:20 MEASUREMENT OF THE ELASTIC PROPERTIES USING A PRESSURIZED THIN TUBE
HK. Kim, YH. Lee, IH. Kim, HG. Kim
- 16:20 - 16:40 RELIABILITY DESIGN OF MECHANICAL SYSTEMS SUBJECT TO REPETITIVE STRESSES
S. Woo
- 16:40 - 17:00 NUMERICAL TOOL WITH MEAN-STRESS CORRECTION FOR FATIGUE LIFE ESTIMATION OF COMPOSITE PLATES
L. Takacs, L. Kovacs, T. Olajos

15:40 - 17:00 Residual stress effects (RSE)

Room: LECTURE ROOM 4

Chair: Aida Nonn

- 15:40 - 16:00 FRACTURE SURFACES OF 7075-T6 SPECIMENS TESTED IN ROTATING BENDING FATIGUE TESTS AND EVALUATION OF THE CENTRIFUGAL FORCE CONTRIBUTION
S. Baragetti, E. Borzini, Ž. Božić, E.V. Arcieri
- 16:00 - 16:20 CRACK-TERMINATING ANGLES IN HEAT-TREATED SILICA DCDC-SPECIMENS
P. Hettich, T. Fett, K. G. Schell, G. Rizzi, S. Wagner, M.J. Hoffmann
- 16:20 - 16:40 BENEFIT OF HEAT TREATMENT INDUCED RESIDUAL STRESSES ON RESIDUAL FATIGUE LIFETIME OF RAILWAY AXLES
P. Pokorný, P. Dlhý, J. Poduška, L. Náhlík, R. Fajkoš, P. Hutař
- 16:40 - 17:00 -
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15:40 - 17:00 Fracture and failure criteria (FFC)

Room: LECTURE ROOM 5

Chair: Aleksandar Grbović

- 15:40 - 16:00 INDIVIDUAL MECHANICAL INTERACTION OF MULTIPLE CRACKS AND ITS RELATION WITH THE COLLECTIVE BEHAVIOR: EXPERIMENTAL OBSERVATIONS UNDER QUASI-STATIC LOADING CONDITIONS
K. Uenishi, Y. Fukuda, N. Kame
- 16:00 - 16:20 COMPARISON OF ASTM E1921 MASTER CURVE AND STRESS DISTRIBUTION T-SCALING METHOD TO PREDICT FRACTURE TOUGHNESS TEMPERATURE DEPENDENCE IN THE DUCTILE-TO-BRITTLE TRANSITION TEMPERATURE REGION
T. Meshii
- 16:20 - 16:40 INVESTIGATION OF HIGH-TEMPERATURE MECHANICAL PROPERTIES FOR TYPE 316L STAINLESS STEEL
WG. Kim, I.N.C. Kusuma, HY. Lee, SJ. Kim
- 16:40 - 17:00 EXPERIMENTAL AND NUMERICAL SIMULATION OF TENSILE FRACTURE OF NOTCHED SPECIMENS WITH DIFFERENT STRESS CONCENTRATION FACTORS
M. Ma, D. Wei

17:30 - ... Dubrovnik City Center Tour

08:00 - 09:00 Registration

09:00 - 09:40 Plenary Lecture:

THE EFFECT OF CRACK-TIP CONSTRAINT IN FRACTURE MECHANICS

Yury Matvienko

Room: CONFERENCE HALL - ground floor

Chair: Claudio Ruggieri

09:40 - 10:20 Plenary Lecture:

LIQUID METAL INDUCED EMBRITTLEMENT AND STRUCTURAL INTEGRITY

Richard E. Clegg

Room: CONFERENCE HALL - ground floor

Chair: Ruslan Balokhonov

10:20 - 10:40 Coffee Break

10:40 - 12:00 Applications to components and structures (ACS)

Room: CONFERENCE HALL

Chair: Katarina Monkova

10:40 - 11:00 PORE FLUID ENHANCED THERMAL SPALLATION OF ROCK: A NUMERICAL STUDY
T. Saksala

11:00 - 11:20 EXPERIMENTAL TESTS AND MATHEMATICAL AND NUMERICAL MODELS FOR THE IMPACT DYNAMICS: AN APPLICATION FOR THE CONCEPTION OF AN ANTI-TERROR BARRIER
S. Baragetti, Ž. Božić, E.V. Arcieri

11:20 - 11:40 DIGITAL TWIN BASED FATIGUE MONITORING OF KNUCKLE BOOM CRANE
T. Moi, A. Cibicik, T. Rølvåg

11:40 - 12:00 CENTRAL SEMI-INFINITE CRACK IN ORTHOTROPIC STRIP; ANALYTICAL SOLUTION
K.B. Ustinov, E.A. Kasparova

10:40 - 12:00 Reliability and integrity of engineering structures (RIE)

Room: LECTURE ROOM 4

Chair: Kyong-Ho Chang

10:40 - 11:00 SIMULATION OF RUNNING DUCTILE FRACTURE IN GAS PIPELINES USING COUPLED FLUID-STRUCTURE MODELING
A. Nonn, V. Keim, S. Münstermann

11:00 - 11:20 RELIABILITY EVALUATION OF GENERAL EXPONENTIAL DISPERSION DEGRADATION MODEL
W. Yan, D. Bigaud, H. Riahi

11:20 - 11:40 AN ELASTIC-PLASTIC CONSTITUTIVE MODEL FOR EXPANSIVE SOIL AND ITS APPLICATION TO SLOPE STABILITY ANALYSIS
ZJ. Tang, MX. Chen, WP. Wu

11:40 - 12:00 -
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12:00 - 14:00 Lunch

14:00 - 15:20 Fatigue and fracture of weldments, welded components, joints and adhesives (FFW)

Room: CONFERENCE HALL

Chair: Toshiyuki Meshii

14:00 - 14:20 INFLUENCE OF THE GREEN INHIBITOR ON THE WELDING JOINT OF API X65 PIPELINE STEEL IN DYNAMIC LOADING

M. Hadj Meliani, B.G.N. Muthanna, M. Amara

14:20 - 14:40 FATIGUE LIFE ANALYSIS OF THE CRUCIFORM WELDING MEMBER

KH. Chang, WS. Shin, SU. Kang, S. Muzaffer

14:40 - 15:00 ENGINEERING CRITICAL ASSESSMENT OF AN ANTENNA TOWER STEEL SHELL ELEMENTS WELDED JOINTS

D. Radu, A. Sedmak, S. Sedmak

15:00 - 15:20 -

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14:00 - 15:20 Durability and life extension of structures and components (DLE)

Room: LECTURE ROOM 4

Chair: Ayhan Ince

14:00 - 14:20 EVALUATION OF CUTTING PROPERTIES OF HIGH-SPEED STEEL HSSE-PM WITHIN THE LONG-TERM TESTS

K. Monkova, P. Monka, M. Belan, P. Pastucha, J. Jurko

14:20 - 14:40 STUDY OF NUMERICAL ITERATION ALGORITHMS FOR THE ABSOLUTE LAGRANGIAN EULERIAN FORMULATION

G. Fotland, B. Haugen, T. Rølvåg

14:40 - 15:00 INFLUENCE OF HEAT TREATMENT ON THE NEAR-THRESHOLD FATIGUE CRACK GROWTH BEHAVIOR IN HIGH STRENGTH ALUMINUM ALLOY

M.S. Nandana, K. Udaya Bhat, C.M. Manjunatha

15:00 - 15:20 ELASTIC PLASTIC TRANSIENT MECHANICAL ANALYSIS AND LCF ASSESMENT OF THE DEMINING TOOL TILLER

D. Cazin, S. Braut, Ž. Božić, R. Žigulić

15:20 - 15:40 Coffee Break

15:40 - 18:00 Poster Session

Room: Hall

FRACTURE AND FAILURE ANALYSIS OF A NICKEL ALUMINIUM BRONZE (NAB) CHAIN CONNECTOR OF A DRAWING MACHINE

A. Vazdirvanidis, G. Pantazopoulos

MECHANICAL BEHAVIOR STUDY OF OPTICAL GLASS AND CERAMIC GLASS DURING THE CYCLIC VICKERS INDENTATION TEST

M. Bentoumi, H. Hadidane, A. Montagne, A. Iost

NUMERICAL MODELING OF THE BEHAVIOR OF A REINFORCED SLAB SUBJECTED TO A CENTERED LOADING

F. Taouche-Kheloui, K.A. Tahar, A. Si Salem, O. Belaidi, F. Toubal

MODELLING THE INFLUENCE OF THERMOMECHANICAL HEATING ON THE FAILURE OF A NOTCHED BAR

O. Belaidi, M. Ould Ouali, F. Kheloui-Taouche

USING THE FRACTURE MECHANICS PARAMETERS IN ASSESSMENT OF INTEGRITY AND LIFE OF ROTATING EQUIPMENT

N. Milovanović, A. Sedmak, S.A. Sedmak, B. Đorđević, M. Arandžević

THERMAL FATIGUE BEHAVIOUR OF SS316L DISC: EXPERIMENTATION AND NUMERICAL SIMULATION

F. Mukhtar, F. Qayyum, M. Shah

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19:30 - ... Conference Dinner

Friday, 7/June/2019

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

09:00 - 09:40 **Plenary Lecture:**

RISK BASED APPROACH TO LIFE ASSESSMENT OF WELDED STRUCTURES
Aleksandar Sedmak

Room: CONFERENCE HALL - ground floor
Chair: Richard Clegg

09:40 - 10:20 **Plenary Lecture:**

MULTISCALE MODELLING - COMPUTER DESIGN OF MATERIALS
Siegfried Schmauder

Room: CONFERENCE HALL - ground floor
Chair: Yury Matvienko

10:20 - 10:40 **Coffee Break**

10:40 - 12:00 **Structural integrity assessment (SIA)**

Room: CONFERENCE HALL
Chair: Kim Seonjin

10:40 - 11:00 FRACTURE TOUGHNESS PREDICTIONS FROM SUBSIZE PCVN SPECIMENS USING A MODIFIED LOCAL APPROACH
C. Ruggieri

11:00 - 11:20 SHARK ATTACKS ON OFFSHORE STREAMER CABLES
T. Rølvåg, G.V. Arefjord, A. Lian, A.B. Hagen, T.B. Hagen

11:20 - 11:40 IMPACT OF LOW-ENERGY MAGNETIC FIELD ON ELASTIC-PLASTIC WAVE PROPAGATION PROCESS AND CONSERVATION OF THIS IMPACT OVER TIME
V. Kats, V. Morozov

11:40 - 12:00 SIMPLIFIED CONSTRAINT-MODIFIED FAILURE ASSESSMENT PROCEDURE FOR STRUCTURAL COMPONENTS CONTAINING DEFECTS
D. Leonetti, B. Snijder, J. Maljaars

10:40 - 12:00 **Failure investigation and analysis (FIA)**

Room: LECTURE ROOM 4
Chair: Sanjin Braut

10:40 - 11:00 DESCRIBING ACCELERATING FAILURE AND FAILURE TIME PREDICTION
S. Hao, S. Zhou

11:00 - 11:20 UNCERTAINTY PROPAGATION IN SMALL TIME SCALE MODEL BASED FATIGUE CRACK GROWTH ANALYSIS USING STOCHASTIC COLLOCATION METHOD
H. Tang, X. Guo

11:20 - 11:40 CHARACTERIZATION OF THE ANISOTROPY OF EXTRUDED PROFILES BASED ON RECYCLED AW6060 ALUMINUM CHIPS
A. Koch, T. Henkel, F. Walther

11:40 - 12:00 -
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12:00 - 13:30 **Lunch**

13:30 - 14:00 **Conference Closing**

Room: CONFERENCE HALL - ground floor

3rd International Conference on Structural Integrity and Durability - ICSID 2019

Centre for Advanced Academic Studies

Dubrovnik, Croatia, June 4 - 7, 2019

Conference Venue

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

