

PROGRAMME (Time: CEST)



20.09.2021

15:00 – 16:30 - *A (virtual) walk in Rome*

23.09.2021

09:10 - 10:00: **Invited 5:** Chair: Berto
10:00 - 10:50: Session 10 Chair: Reis, Palin-Luc
10:50 - 11:00: *Coffee Break*
11:00 - 12:40: Session 11 Chair: Doquet

12:40 - 14:10: *Lunch*

14:10 - 15:00: **Invited 6:** Chair: Iacoviello
15:00 - 16:30: Session 12: Chair: Iturrioz, Kostas, Friedrich
16:30 - 16:40: *Coffee Break*
16:40 - 17:40: Session 13: Chair: Fantuzzi, Zanichelli
17:40 - 17:50: *TC3 Young Scientist Award* Chair: Correia

21.09.2021

09:00 - 09:10: *Welcome*
09:10 - 10:00: **Invited 1:** Chair: Sedmak
10:00 - 11:20: Session 1: Chair: Citarella, Dhondt
11:20 - 11:30: *Coffee Break*
11:30 - 13:10: Session 2: Chair: Shanyavskiy, Shlyannikov

13:10 - 14:10: *Lunch*

14:10 - 15:00: **Invited 2:** Chair: Reis
15:00 - 16:10: Session 3: Chair: Santus
16:10 - 16:20: *Coffee Break*
16:20 - 18:00: Session 4: Chair: Ferro

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09:10 - 10:00: **Invited 7:** Chair: Palin-Luc
10:00 - 10:50: Session 14 Chair: Benedetti
10:50 - 11:10: *Coffee Break*
11:10 - 12:30: Session 15 Chair: Campagnolo, Scorza

12:30 - 13:00: *Lunch*

13:00 - 13:50: Session 16: Chair: Campagnolo, Ronchei
13:50 - 15:30: Session 17: Chair: Escalero, Infante Garcia
15:30 - 15:40: *Closing*

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09:10 - 10:00: **Invited 3:** Chair: Shlyannikov
10:00 - 11:00: Session 5: Chair: Vázquez Valeo, Zanichelli
11:00 - 11:10: *Coffee Break*
11:10 - 11:50: Session 6 Chair: Vázquez Valeo, Zanichelli
11:50 - 12:40: Session 7 Chair: Michelini

12:40 - 14:10: *Lunch*

14:10 - 15:00: **Invited 4:** Chair: C. Navarro
15:00 - 16:30: Session 8: Chair: Lanzoni, Morini, Savino
16:30 - 16:40: *Coffee Break*
16:40 - 17:30: Session 9: Escalero, Infante Garcia

INVITED LECTURES (Time: CEST) - LIVE

CP2021



21.09.2021	09:10 - 10:00	Invited lecture 1: Fatigue fractures do not nucleate always in the same manner	by Donato Firrao
	14:10 - 15:00	Invited lecture 2: Crack paths in natural materials	by David Taylor
22.09.2021	09:10 - 10:00	Invited lecture 3: The problem of predicting entrance of a mechanical system into its critical state. Applications in the restoration/conservation of stone monuments	by Stavros Kourkoulis
	14:10 - 15:00	Invited lecture 4: Short crack path under fretting conditions	by José Alexander Araújo
23.09.2021	09:10 - 10:00	Invited lecture 5: Damage mechanism of an extruded magnesium alloy in uniaxial low-cycle fatigue with ratchetting	by Guozheng Kang
	14:10 - 15:00	Invited lecture 6: Comparison of Fatigue Delamination Propagation in DCB Specimens	by Leslie Banks-Sills
24.09.2021	09:10 - 10:00	Invited lecture 7: Very-high-cycle fatigue behavior and lifetime	by Guian Qian

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10:00 - 11:20 - Session 1. Chairpersons: Roberto Citarella, Guido Dhondt

Thematic Symposium 13: *Crack path analysis and prediction in materials and structures*



10:00 – 10:10	<u>Andrey Shanyavskiy</u> , Alexey Soldatenkov	21: Crack path of in-service fatigued fan titanium disk of D18-T gas-turbine engine of the aircraft AN-124	https://youtu.be/zNWHcZ_scjE
10:10 – 10:20	<u>Jean-Christophe Ehrström</u> , Julien Laye, Erembert Nizery, Nicolas Bayona-Carrillo	18: Damage tolerance of a hybrid lower wing bonded stiffened panel with a Fiber Metal Laminate skin	https://youtu.be/HICFt--WgG4
10:20 – 10:30	<u>Mahsa Sakha</u> , Morteza Nejati, Ali Aminzadeh, Saeid Ghoul, Martin Saar	23: On reliable prediction of fracture path in anisotropic rocks Candidate for TC3 Young Scientist Award	https://youtu.be/_KeoZ_Pgit8
10:30 – 10:40	<u>Aljaž Ignatijev</u> , Branko Nečemer, Janez Kramberger, Srečko Glodež	15: Fatigue crack initiation and growth in a tooth root of sintered gears	https://youtu.be/4p5TFEMqaYY
10:40 – 10:50	<u>Rosa De Finis</u> , Davide Palumbo, Francesca Di Carolo, Mauro Ricotta, Giovanni Meneghetti, Umberto Galletti	32: Crack tip position evaluation and Paris' law assessment of a propagating crack by means of temperature-based approaches	https://youtu.be/mgYMH3FSEhc
10:50 – 11:00	<u>Dmitry Reznikov</u>	60: Probabilistic assessment of fatigue crack propagation with accounting for effects of crack retardation due to overloads	https://youtu.be/qJsVfaj8Tvk
11:00 – 11:10	<u>José Antonio Balbín</u> , Víctor Chaves, Alfredo Navarro	61: Crack paths for mild steel specimens with circular holes in high cycle fatigue	https://youtu.be/KqCI5Z74RqI
11:10 – 11:20	<u>Daria Fedotova</u> , Ruslan Khamidullin	27: Mixed mode crack paths in terms plastic stress intensity factors based on conventional and strain gradient plasticity Candidate for TC3 Young Scientist Award	https://youtu.be/2hZFfe_XP4c

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11:30 - 13:10 - Session 2. Chairpersons: Andrey Shanyavskiy, Valery Shlyannikov

Thematic Symposium 13: *Crack path analysis and prediction in materials and structures*



11:30 – 11:40	<u>Hannes Panwitt</u> , Paul Köster, Manuela Sander	28: Automated crack length measurement for mixed mode fatigue cracks using digital image correlation Candidate for TC3 Young Scientist Award	https://youtu.be/xAqeXMURCJA
11:40 – 11:50	<u>Rustam Yarullin</u> , Valery Shlyannikov, Roberto Citarella, Daniele Amato	35: Mixed mode surface crack growth rate in aluminum alloys under complex stress state	https://youtu.be/H74lqeCK19w
11:50 – 12:00	M.R.M. Aliha, <u>H.G. Kucheki</u> , F. Berto	107: Numerical analysis of crack initiation angles and propagation paths in adhesive bonded joints under mixed mode I/II loading using a novel test specimen	https://youtu.be/A3TVAHAnyX8
12:00 – 12:10	<u>Filip Vucetic</u> , Katarina Colic, Aleksandar Grbovic, Aleksandar Sedmak, Simon Sedmak, Filippo Berto	146: Fatigue crack paths in Ti alloy orthopaedic plates	https://youtu.be/hLEEDmTfeuo
12:10 – 12:20	<u>Daniele Amato</u> , Roberto Citarella, Guido Dhondt	104: Crack growth propagation prediction in mixed-mode in non-proportional missions	https://youtu.be/ryNKCuoQ1Ok
12:20 – 12:30	<u>A. Zafra</u> , G. Álvarez, J. Belzunce, C. Rodríguez	66: Influence of internal hydrogen on the fatigue crack growth rate of the coarse-grain heat affected zone of two CrMo steels	https://youtu.be/knCN_0MuTvk
12:30 – 12:40	<u>Behzad V. Farahani</u> , Frederico Direito, Pedro J. Sousa, Pedro M. G. P. Moreira	33: Crack Closure Phenomenon by Electronic Speckle Pattern Interferometry	https://youtu.be/DI-EGyJG7UI
12:40 – 12:50	<u>Aljaž Litrop</u> , Peter Zobec, Domen Šeruga, Marko Nagode, Jernej Klemenc	47: Experimental Crack Path Analysis of Aluminum alloy Specimen under Dynamic Shear Loading using Digital Image Correlation method	https://youtu.be/2cTiZDMUr4
12:50 – 13:00	<u>Yuri Petrov</u> , Nikita Kazarinov, Aleksander Utkin	83: Dynamic effects and an oscillator model of a space-time representative volume describing fracture process at the crack	https://youtu.be/bCPU822T-ZQ
13:00 – 13:10	<u>Branko Nečemer</u> , Janez Kramberger, Srečko Glodež	30: Fatigue crack growth in the re-entrant auxetic structure	https://youtu.be/nSu23Wqdqic

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15:00 - 16:10 - Session 3. Chairperson: **Ciro Santus**

Thematic Symposium 1: *Notch fatigue strength in the presence of intrinsic defectiveness and/or complex multiaxial loading*



15:00 – 15:10	Ricardo Branco, José Domingos Costa, J. Jesus, Filippo Berto, J.A. Martins Ferreira, <u>C. Capela</u>	2: Prediction of multiaxial fatigue life of notched maraging steel components manufactured by selective laser melting	https://youtu.be/fDR6VQBbOJs
15:10 – 15:20	<u>Matteo Benedetti</u> , Vigilio Fontanari, Diego Odorizzi, Ciro Santus , Danilo Lusuardi, Filippo Zanini, Simone Carmignato	5: Plain and notch fatigue strength of ductile cast iron GJS600: The role of defect sensitivity	https://youtu.be/PCqZOOpKRz7E
15:20 – 15:30	Giovanni Meneghetti, Luca Vecchiato, <u>Alberto Campagnolo</u> , Filippo Sandoletti, Matteo Cova	40: Experimental analysis of the crack propagation threshold of short fatigue cracks in a tool steel using SENB specimens	https://youtu.be/7qg680fp4_Y
15:30 – 15:40	<u>Paolo Ferro</u> , Keke Tang, Filippo Berto	64: Residual Notch Stress Intensity Factor assessment via 3D welding numerical simulation: influence of power input	https://youtu.be/KiW14NRPKfU
15:40 – 15:50	<u>Wei Song</u> , Guangtao Zhou, Shoupan Wei, Muchun Cui, Filippo Berto	120: Fatigue failure transition analysis of load carrying cruciform welded joints by extended local approach	https://youtu.be/MKRJhesgg2Q
15:50 – 16:00	<u>Wei Song</u> , Zheng Man, Jie Xu, Shoupan Wei, Muchun Cui, Filippo Berto	121: Misalignment effect on the fatigue failure behavior of steel cruciform welded joints	https://youtu.be/H2VXV2R9ycU
16:00 – 16:10	<u>Oleg Naimark</u> , Sergey Uvarov, Alexander Nikityuk	134: Duality of critical damage–failure transition dynamics in Crack Paths	https://youtu.be/ZOz8PIDOXUQ

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16:20 - 18:00 - Session 4. Chairperson: Paolo Ferro



16:20 – 16:30	<u>Karolina Glowacka</u> , Andrzej Kurek, Tadeusz Smolnicki, Tadeusz Łagoda, Tomasz Osiecki, Lothar Kroll	45: Change in elastic modulus during fatigue bending and torsion of GFRP	https://youtu.be/JyBA3x2o1tk
16:30 – 16:40	<u>Szymon Derda</u> , Aleksander Karolczuk, Mariusz Prazmowski, Andrzej Kurek, Marcin Wachowski	56: Fatigue failure mechanism of explosively welded Ta/Cu/Steel composite	https://youtu.be/UBiw_5PfJQs
16:40 – 16:50	<u>Ivan Lomakin</u> , Anniina Kinnunen, Tero Mäkinen, Kim Widell, Juha Savolainen, Sebastian Coffeng, Juha Koivisto, Mikko J. Alava	57: Fatigue crack growth: from growth dynamics to microscale through avalanches and coarse-graining	https://youtu.be/xg0AzW34wKw
16:50 – 17:00	<u>Jesus Toribio</u> , Beatriz Gonzalez, Juan-Carlos Matos, Francisco-Javeier Ayaso	84: Multiscale approach for fatigue crack propagation paths in cold drawn pearlitic steels	https://youtu.be/xBR5PUdfA4I
17:00 – 17:10	<u>Luca Vecchiato</u>	55: Calibration of the direct current potential drop (DCPD) method for in-situ fatigue crack growth monitoring of single-edge crack in round bars Candidate for TC3 Young Scientist Award	https://youtu.be/woTUEbIndg
17:10 – 17:20	<u>Nabam Teyi</u> , Sandeep Singh	113: A review of application of data science tools in crack identification and localization Candidate for TC3 Young Scientist Award	https://youtu.be/aiAQ0ef6ds0
17:20 – 17:30	Lucia Morales-Rivas, <u>Ava Azadi Chegeni</u> , Eberhard Kerscher	16: Fatigue behavior of nanostructured bainite	https://youtu.be/y-HuTeIkAy8
17:30 – 17:40	<u>Zhaolei Zhang</u>	26: Assessment on post-fire properties of bridge hanger	https://youtu.be/4suCFmhraGw
17:40 – 17:50	<u>Liviu Marsavina</u> , Dan Ioan Stoia, Emanoil Linul	98: Mixed modes crack paths in SCB specimens obtained via SLS	https://youtu.be/LSMVQOIXBEo
17:50 – 18:00	<u>Jesus Toribio</u> , Elena Ovejero	192: Stress corrosion cracking paths in cold drawn pearlitic steels	https://youtu.be/_F1eUp6aH0k

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10:00 - 11:00 - Session 5. Chairpersons: Jesús Vázquez Valeo, Andrea Zanichelli



10:00 – 10:10	<u>Svetlana Atroshenko</u> , Serge Maier, Vladimir Smirnov	4: Structural analysis of crack surface in rail after long-term operation	https://youtu.be/NlqmUB2w8iA
10:10 – 10:20	<u>Davide Leonetti</u> , Sabrina Vantadori	14: On the growth of rolling contact fatigue cracks using weight functions	https://youtu.be/96xYQOOTSCs
10:20 – 10:30	<u>Giovanni Pio Pucillo</u> , Giovanniluca De Vita, Eugenio Fedeli	162: Fatigue crack growth rate dependency on cold expansion degree in railway steel	https://youtu.be/EUmOwecnlbk
10:30 – 10:40	<u>Vicente Martín</u> , Diego Erena, Jesús Vázquez, Carlos Navarro	50: Rolling effect in fretting fatigue test at the crack initiation stage	https://youtu.be/yFsm0cIQz_Y
10:40 – 10:50	<u>Andrea Zanichelli</u> , Andrea Carpinteri, Camilla Ronchei, Daniela Scorza, Sabrina Vantadori	123: Influence of crack nucleation location on fretting fatigue crack path	https://youtu.be/ay4K0kN6Muw
10:50 – 11:00	<u>Abdoullah Namdar</u>	49: The crack zone simulation of clay backfill under seismic load	https://youtu.be/L75MbstAKG4

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11:10 - 11:50 - Session 6. Chairpersons: Jesús Vázquez Valeo, Andrea Zanichelli



11:10 – 11:20	<u>Chai Shun</u>	25: Cracking Investigations of Precast Concrete Segmental Box-girders under Bending Effect	https://youtu.be/TFy1n-3-kSA
11:20 – 11:30	<u>Jesus Toribio</u> , Beatriz Gonzalez, Juan-Carlos Matos	105: Analysis of near-tip fatigue crack path deflection in metallic materials	https://youtu.be/OONrJ231ifg
11:30 – 11:40	<u>Amar Boukais</u> , Zohra Dahou, Mohammed Mattallah	63: Experimental and numerical investigation of the effect of the maximum aggregate size on the relationship between FPZ length and crack extensions in concrete	https://youtu.be/h1HP9dxdoTw
11:40 – 11:50	<u>Jesus Toribio</u> , Elena Ovejero	76: Hydrogen assisted cracking paths in cold drawn pearlitic steels	https://youtu.be/EasRR3otMpA

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11:50 - 12:40 - Session 7. Chairperson: Elena Michelini

Thematic Symposium 14: *Crack path in innovative eco-materials*



11:50 – 12:00	Elena Michelini, <u>Daniele Ferretti</u> , Federico Pagliari, Roberto Cerioni, Laura Bergamonti, Marianna Potenza, Claudia Graiff	62: Fracture energy of sustainable geopolymer composites with and without the addition of slaughterhouse by-products as fiber-reinforcement: an experimental investigation	https://youtu.be/X5Yxcs8IWtU
12:00 – 12:10	Andrea Curto, Vincenzo Savino, <u>Marco Viviani</u>	138: Modern Catalan vaults: FE analyses and experimental characterization	https://youtu.be/y7_z8bJve1s
12:10 – 12:20	<u>Flora Faleschini</u> , Vanesa-Ortega Lopez, Katya Brunelli, Carlo Pellegrino	136: Mechanical and durability behavior of concrete with EAF aggregates treated with FMP s.r.l. patent	https://youtu.be/IMJ2IQQm85Y
12:20 – 12:30	<u>Alice Sirico</u> , Patrizia Bernardi, Corrado Sciancalepore, Daniel Milanese, Monica Ferraris, Beatrice Belletti	152: Fracture behavior of concretes containing MSWI vitrified bottom ash	https://youtu.be/WpcPczzuNTI
12:30 – 12:40	<u>Devid Falliano</u> , Luciana Restuccia, Giuseppe Andrea Ferro	168: Strategies to increase the fracture energy of foamed concrete	https://youtu.be/O5V1YacqyEE

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15:00 - 16:30 - Session 8. Chairpersons: Luca Lanzoni, Lorenzo Morini, Vincenzo Savino

Thematic Symposium 10: *Damage, homogenization and crack problems in elastic media*

CP2021



15:00 – 15:10	<u>Andrea Nobili</u> , Enrico Radi	1: Diffraction and reflection of antiplane shear waves in a cracked microstructured material	https://youtu.be/v1KyHSNvIkU
15:10 – 15:20	<u>Vincenzo Savino</u> , Luca Lanzoni, Angelo Marcello Tarantino, Marco Viviani	13: A FE model simulating the damage pattern along the interface of retrofitted cement based members	https://youtu.be/cf5dyJLKE7A
15:20 – 15:30	<u>Matteo Pellicari</u> , Federico Oyedeji Falope, Luca Lanzoni, Angelo Marcello Tarantino	17: Snap-through and Eulerian buckling of the von Mises truss	https://youtu.be/p_vbeGwgvW8
15:30 – 15:40	<u>Gelacio Juárez-Luna</u> , Ángel Uriel Martínez-Miranda, Gustavo Ayala	20: Closed form solutions for the strain localization problem in a softening bar under tension with the continuum damage and the embedded discontinuity models	https://youtu.be/8TGamENQWFY
15:40 – 15:50	<u>Ángel Uriel Martínez-Miranda</u> , Gelacio Juárez-Luna	22: Development of closed form solutions for modeling the material failure process in beams as hinges by the embedded discontinuity model	https://youtu.be/gq59d-U52_A
15:50 – 16:00	Fabrizio Greco, Lorenzo Leonetti, Paolo Lonetti, <u>Arturo Pascuzzo</u> , Camilla Ronchei	127: Crack propagation analysis in masonry structures via an inter-element cohesive fracture approach: assessment of mesh dependency issues	https://youtu.be/SJHzVtLZ_ss
16:00 – 16:10	<u>Arturo Pascuzzo</u> , Fabrizio Greco, Domenico Ammendolea, Paolo Lonetti, Daniele Gaetano	128: On the combination of Moving Mesh technique and M-integral method for predicting crack propagation mechanisms in Functionally Graded Materials	https://youtu.be/Cxvx_XTtoi_s
16:10 – 16:20	Francesca Fantoni, <u>Lorenzo Morini</u> , Andrea Bacigalupo, Marco Paggi	147: Effective properties and generalized Floquet-Bloch spectrum of multi-layered renewable energy devices	https://youtu.be/wgQ-4ESHjR8
16:20 – 16:30	<u>Umberto De Maio</u> , Fabrizio Greco, Lorenzo Leonetti, Paolo Nevone Blasi, Andrea Pranno	153: Debonding failure analysis of FRP-plated RC beams via an inter-element cohesive fracture approach	https://youtu.be/PHHOGPCHT7c

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16:40 - 17:30 - Session 9. Chairpersons: Mikel Escalero, Diego Infante-García

Thematic Symposium 9: *Fatigue crack growth and orientation criteria: considerations about crack front direction, shape and plastic phenomena*



16:40 – 16:50	<u>Vassilios Karamitros</u> , Duncan W. Maclachlan, Fionn P.E. Dunne	9: Modelling of stored energy driven short crack growth in Ni single crystals g-g' microstructure	https://youtu.be/6qLRmtwJ6_M
16:50 – 17:00	<u>Ciro Santus</u> , Paolo Neri, Luca Romoli, Adrian Lutey, Sunil Raghavendra, Matteo Benedetti	59: Fatigue fracture surface investigations with a 3D optical profiler	https://youtu.be/ORD5BD_yLEk
17:00 – 17:10	<u>Mikel Escalero</u> , Haritz Zabala, Miguel Muñiz-Calvente	74: Trends in crack shapes and through-the-thickness crack driving force distributions for naturally growing fatigue cracks	https://youtu.be/qTvYZnkEcjs
17:10 – 17:20	Aleksandar Grbovic, <u>Aleksandar Sedmak</u> , Blagoj Petrovski, Abulgasem Sghayer, Simon Sedmak, Javad Razavi, Filippo Berto	85: Fatigue crack paths in AA6156 T6 panels with 4 stringers and 3 clips	https://youtu.be/DTa0uzcNcHQ
17:20 – 17:30	<u>Giovanna Calvín</u> , Mikel Escalero, Haritz Zabala, Miguel Muñiz	95: Influence of the crack front shape on the distribution of effective stress intensity factor range	https://youtu.be/bA9cFzMyV1E

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10:00 - 10:50 - Session 10. Chairpersons: Luis Reis, Thierry Palin-Luc

Thematic Symposium 3: *Crack Path in VHCF*



10:00 – 10:10	Alexandre Messenger, Arnaud Junet, <u>Thierry Palin-Luc</u> , Jean-Yves Buffiere, Wolfgang Ludwig, Nicolas Ranc, Nicolas Saintier, Mohamed El May, Yves Gaillard, Yves Nadot	10: Crack path of internal small fatigue cracks in a cast aluminium observed by in-situ synchrotron very high cycle fatigue tests	https://youtu.be/on5qFBBc3Uo
10:10 – 10:20	Pedro R. Da Costa, Ricardo Pereira, <u>Luis Reis</u> , Diogo Montalvão, Manuel Freitas	44: Crack path and fracture surface analysis in VHCF under biaxial loadings	https://youtu.be/DfqT6exw5pA
10:20 – 10:30	Evgenii Naydenkin, <u>Alexey Soldatenkov</u> , Andrey Shanyavskiy, Ivan Mishin, Vladimir Oborin	58: Crack path for VHCF fracture of VT22 titanium alloy after severe plastic deformation	https://youtu.be/XYD-d3ltpSw
10:30 – 10:40	<u>Andrea Tridello</u> , Filippo Berto, Davide S. Paolino	78: Fatigue response up to 10^9 cycles of notched specimens made of SLM Ti6Al4V alloy	https://youtu.be/TVomcFoJTXM
10:40 – 10:50	<u>Gonzalo Mariano Dominguez Almaraz</u> , Manuel Guzmán Tapia, Ishvari F. Zuniga Tello	88: Ultrasonic fatigue tests at room temperature and $R = -1$, on Inconel 718	https://youtu.be/QsTwgA9P6Uo

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11:00 - 12:30 - Session 11. Chairperson: Véronique Doquet



11:00 – 11:10	<u>Vittorio Di Cocco</u> , Costanzo Bellini, Francesco Iacoviello, Larisa Patricia Mocanu, Stefano Natali	97: Bath chemical composition influence on intermetallic phases damage in hot dip galvanizing	https://youtu.be/iV8WR8pbT5s
11:10 – 11:20	<u>Aris Tsakmakis</u> , Michael Vormwald	80: Analysis of a gradient damage model coupled with plasticity exhibiting isotropic and kinematic hardening	https://youtu.be/XDoRH3aU7Vc
11:20 – 11:30	<u>Zhao Shixiang</u> , Yuri Petrov, Grigory Volkov	118: The analytical study of nonmonotonic behavior of dynamic yielding diagram	https://youtu.be/zyi738VyZ6s
11:30 – 11:40	<u>Pietro Foti</u> , Dario Santonocito, Giacomo Risitano, Filippo Berto	91: Fatigue strength of a common steel welded detail through Eurocode 3 and local strain energy values	https://youtu.be/EtcCIG-6a14
11:40 – 11:50	<u>Costanzo Bellini</u> , Vittorio Di Cocco, Larisa Patricia Mocanu, Francesco Iacoviello	92: Fracture characteristics of aluminium-CFRP FML under three-point bending loading	https://youtu.be/LOYp53C0Dvk
11:50 – 12:00	Aleksey Evstifeev, <u>Grigory Volkov</u>	112: Experimental and analytical study of dynamic strength based on randomized approaches	https://youtu.be/xQjtNbx6XP0
12:00 – 12:10	<u>Nabam Teyi</u> , Sandeep Singh	129: A decadal review of various modelling and analysis of cracked rotors Candidate for TC3 Young Scientist Award	https://youtu.be/_HQLACg2Kb8
12:10 – 12:20	<u>Abhishek Tiwari</u>	53: Effect of material inhomogeneity under creep conditions Candidate for TC3 Young Scientist Award	https://youtu.be/2wGrqGq6AA0
12:20 – 12:30	<u>Hithendra Karakampalle</u> , Raghu V. Prakash	182: Impact of cracks and interference on the Lozenge pattern of joints	https://youtu.be/nk-s0lpLPBE
12:30 – 12:40	Viktor Morozov, <u>Victor Kats</u>	31: Forming and Propagation of the Cracks Initiated with Electric Explosion of Wires in Polymer Materials	https://youtu.be/p77YB6aQ_4A

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15:00 - 16:30 - Session 12. Chairpersons: Ignacio Iturrioz, Luis Eduardo Kosteski, Leandro Ferreira Friedrich

Thematic Symposium 4: *Crack path simulation using numerical discrete approaches*



15:00 – 15:10	Raquel Carolina Zideck, Karina Comparsi Azzolin, Alison Simonetti Milani, André Lubeck, Gihad Mohamad, <u>Luis Eduardo Kosteski</u>	11: Masonry walls with horizontal chases: a numerical analysis using the lattice discrete element method	https://youtu.be/0KLlzz34chU
15:10 – 15:20	<u>Yury Matvienko</u> , Igor Razumovsky, Aleksandr Fedorov	12: Fatigue crack path simulation in the local residual stress field caused by static indentation in the vicinity of the crack tip	https://youtu.be/QfkNypMHqT4
15:20 – 15:30	<u>Nikita Kazarinov</u> , Alexander Khvorov	42: Using artificial neural networks to predict impact strength of targets with perforation	https://youtu.be/9dN7avJEeYM
15:30 – 15:40	<u>Angélica Colpo</u> , Leandro Friedrich, Andrea Zanichelli, Sabrina Vantadori, Ignacio Iturrioz	94: Fracture behavior evaluation of sandwich panels: experimental results and discrete elements simulations	https://youtu.be/TSodTIGBiY
15:40 – 15:50	<u>Ilia Nikitin</u> , Alexander Nikitin, Boris Stratula	108: The prediction of the crack path and structure durability based on the damage function approach	https://youtu.be/TINQdWYsetc
15:50 – 16:00	<u>Leandro F. Friedrich</u> , Édiblu Cezar, Angélica B. Colpo, Luis E. Kosteski, Ignacio Iturrioz, Giuseppe Lacidogna, Gianni Niccolini	111: Peridynamic simulations: Evaluation of concrete beams using alternative global Acoustic Emission parameters	https://youtu.be/2fvWiHtjMew
16:00 – 16:10	<u>Larisa Stepanova</u> , Oksana Belova	163: Coefficients of the Williams series expansion and their evaluation through molecular dynamics simulations	https://youtu.be/fpgQO4pUYpA
16:10 – 16:20	<u>Paolo Livieri</u> , Fausto Segala	106: Three-dimensional fatigue crack propagation by means of first order SIF approximation	https://youtu.be/14cIesu747A
16:20 – 16:30	Yanan Zhang, <u>Erdogan Madenci</u>	114: Fatigue life and crack path prediction based on peridynamics and kinetic theory of fracture	https://youtu.be/9TSgDYb0qjo

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16:40 - 17:40 - Session 13. Chairperson: Nicholas Fantuzzi, Andrea Zanichelli



16:40 – 16:50	Nicholas Fantuzzi, <u>Farui Shi</u> , Patrizia Trovalusci	144: Stress field evaluation in microstructured composites with holes treated as Cosserat continua	https://youtu.be/ZGLmN2XiiDI
16:50 – 17:00	<u>Andrea Pranno</u> , Fabrizio Greco, Lorenzo Leonetti, Paolo Lonetti, Paolo Nevone Blasi, Umberto De Maio	154: Cracking analysis in Ultra-High-Performance Fiber-Reinforced Concrete with embedded nanoparticles via a diffuse interface approach	https://youtu.be/13FvTgRiR5k
17:00 – 17:10	<u>Abdoullah Namdar</u>	48: Impact of soil crack on embankment seismic resistance	https://youtu.be/K2gSQTv1J2o
17:10 – 17:20	<u>Liu Jun</u> , Dai Guoliang	184: Joint frequency in the rock mass rating 2014 Classification system based on field P-wave propagation velocity tests: a new rating method	https://youtu.be/DVMI1xxiq_8
17:20 – 17:30	<u>Slobodanka Boljanović</u> , Andrea Carpinteri	119: Fatigue degradation analysis of elliptical damage	https://youtu.be/YgeyXehwgIY
17:30 – 17:40	<u>Jesus Toribio</u> , Beatriz Gonzalez, Juan-Carlos Matos, Francisco-Javeier Ayaso	190: On the cleavage stress promoting crack path deflection and anisotropic fracture in cold drawn pearlitic steel	https://youtu.be/8URIErSTLBQ

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10:00 - 10:50 - Session 14. Chairperson: Matteo Benedetti

Thematic Symposium 6: *Fatigue and fracture of additively manufactured materials and structures*



10:00 – 10:10	<u>Riccardo Caivano</u> , Andrea Tridello, Giovanni Barletta, Nicola Gallo, Antonio Baroni, Filippo Berto, Davide Paolino	3: Defect-Driven Topology Optimisation: TopFat algorithm validation via 3D components re-design for real industrial applications	https://youtu.be/AJvo0xjbk-Q
10:10 – 10:20	<u>Jesús Manuel Alegre</u> , Isidoro Iván Cuesta, Andres Díaz Portugal	68: Stress-intensity factor solutions for the simulation of fish-eye fatigue crack growth in round bars subjected to tensile load	https://youtu.be/p2CsRyhSxQM
10:20 – 10:30	<u>Aleksa Milovanovic</u> , Milos Milosevic, Isaak Trajkovic, Aleksandar Sedmak, Javad Razavi, Filippo Berto	86: Crack path direction analysis in plane-strain fracture toughness assessment tests of quasi-brittle PLA polymer and ductile PLA-X composite	https://youtu.be/xf45jZFNsHo
10:30 – 10:40	<u>Mario Álvarez-Blanco</u> , Adrián Arias-Blanco, Diego Infante-García, Miguel Marco, Eugenio Giner	101: Crack morphology in lattice-core specimens made of a biopolymer via fused deposition modelling	https://youtu.be/f1Q9dMes79g
10:40 – 10:50	<u>Ivelina Ivanova</u> , Jules Assih, Dimitar Dontchev	122: Investigation of the fatigue crack propagation behavior of short reinforced concrete corbel strengthened or repaired by bonding carbon fiber reinforced polymer	https://youtu.be/hQ26iuFjOfk

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11:10 - 12:30 - Session 15. Chairpersons: Alberto Campagnolo, Daniela Scorza

Thematic Symposium 7: *Mixed-mode fatigue and fracture problems: experimental tests and theoretical predictions*



11:10 – 11:20	<u>Louis Petureau</u> , Véronique Doquet, Benjamin Dieu	6: Experimental study and numerical simulations of the mixed-mode I + III growth of eccentric elliptical fatigue cracks in cylindrical bainitic steel specimens	https://youtu.be/LaRGZt5Skn8
11:20 – 11:30	<u>Véronique Doquet</u> , Louis Petureau, Benjamin Dieu	7: Influence of a steady mode III on crack tip plasticity and closure effects during mode I fatigue crack growth in a bainitic steel + effect of a non-singular stress on crack path	https://youtu.be/AxhQUaITvc0
11:30 – 11:40	<u>Mael Zaid</u> , Vincent Bonnard, Didier Pacou, Vincent Chiaruttini, Véronique Doquet, Pierre Depouhon	19: Analysis of fatigue crack growth under cyclic mode II + static biaxial compression	https://youtu.be/3rGT6rj6pzA
11:40 – 11:50	<u>Georg Schnalzger</u> , Jürgen Maierhofer, Werner Daves, Reinhard Pippan, Anton Hohenwarter	29: Investigation of fatigue crack growth in pearlitic rail steels under multiaxial loading	https://youtu.be/emab6rTByMo
11:50 – 12:00	<u>Deborah Weiß</u> , Britta Schramm, Gunter Kullmer	67: Influence of plane mixed-mode loading on the kinking angle of clinchable metal sheets	https://youtu.be/GIX3U-_Yj84
12:00 – 12:10	Raffaele Sepe, <u>Venanzio Giannella</u> , Paolo Mazza, Enrico Armentani, Seyed Mohammad Javad Razavi, Filippo Berto	79: Fatigue fracture tests on Al-Li 2198-T851 specimens under mixed-mode conditions	https://youtu.be/z5MZrCLnXt0
12:10 – 12:20	<u>Nina Selyutina</u> , Ivan Smirnov, Yuri Petrov	81: Low-cycle deformation of steel C45E under soft and rigid loading	https://youtu.be/_CU0JuWMPiI
12:20 – 12:30	<u>Daniele Rigon</u> , Filippo Berto, Giovanni Meneghetti	82: Crack paths in multiaxial fatigue of C45 steel specimens and correlation of lifetime with the thermal energy dissipation	https://youtu.be/sEYiE5m5wK8

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13:00 - 13:50 - Session 16. Chairpersons: Alberto Campagnolo, Camilla Ronchei

Thematic Symposium 7: *Mixed-mode fatigue and fracture problems: experimental tests and theoretical predictions*



13:00 – 13:10	<u>Tiago Castro</u> , Lucas Carneiro, Thiago Peixoto, Bruno Carvalho, Marcos Pereira, José Araújo	87: Assessment of multiaxial fatigue of crankshafts subjected to both designed and theoretically critical loadings	https://youtu.be/i0ndwzYuKy4
13:10 – 13:20	Mario A. Sánchez Miranda, <u>Gonzalo M. Domínguez Almaraz</u> , Julio A. Ruiz Vilchez	89: Friction Stir Welding (FSW), dissimilar joining of two polymeric materials: ABS (Acrylonitrile Butadiene Styrene) and PP (Polypropylene)	https://youtu.be/BLKtFkjQQh4
13:20 – 13:30	<u>Daniela Scorza</u> , Andrea Carpinteri, Raimondo Luciano, Camilla Ronchei, Sabrina Vantadori, Andrea Zanichelli	90: A novel methodology for fatigue assessment of high strength steels with non-metallic inclusions	https://youtu.be/VWnAIFctjew
13:30 – 13:40	<u>Keke Tang</u> , Kunrong Chen, Paolo Ferro, Filippo Berto	102: Tuning Lamellar Structure around Microdefect in Bimodal Titanium alloys for Crack Initiation	https://youtu.be/v9zYIrCaJ9k
13:40 – 13:50	Larisa Stepanova, <u>Oksana Belova</u>	165: Experimental evaluation of the stress intensity factors, T-stress and higher order coefficients of the Williams series expansion by digital photoelasticity method and finite element analysis	https://youtu.be/sjX9tVKMI5s

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13:50 - 15:30 - Session 17. Chairpersons: Mikel Escalero, Diego Infante-García

Thematic Symposium 9: *Fatigue crack growth and orientation criteria: considerations about crack front direction, shape and plastic phenomena*



13:50 – 14:00	<u>Diego Infante-García</u> , Henar Miguélez, Eugenio Giner	99: Crack orientation criteria for non-proportional loading based on stress intensity factors and near-crack tip stress fields	https://youtu.be/HfPMCfUNLRA
14:00 – 14:10	<u>Abderrahman Guelzim</u> , Alain Köster, Vincent Maurel, Vincent Chiaruttini, Érembert Nizery	100: Crack deviation in thick rolled plates of 2050-T8 Aluminum Alloy	https://youtu.be/2QgBRFkR3nM
14:10 – 14:20	Riccardo Cappello, Salvatore Cutugno, <u>Giuseppe Pitarresi</u>	103: Detection of crack-closure during fatigue loading by means of Second Harmonic Thermoelastic Stress Analysis	https://youtu.be/OI4KUjn7zUA
14:20 – 14:30	<u>Xiao Su</u> , Weifeng Wan, Fionn P.E. Dunne, James Marrow	137: Crack field analysis by optical DIC of short cracks in Zircaloy-4	https://youtu.be/shNK0ngwJsU
14:30 – 14:40	<u>Camilla Ronchei</u> , Andrea Carpinteri, Daniela Scorza, Andrea Zanichelli, Sabrina Vantadori	139: A novel damage parameter for fatigue life assessment under non-proportional loading	https://youtu.be/YQ-J4g79wLg
14:40 – 14:50	<u>Alejandro S. Cruces</u> , Alfonso Exposito, Ricardo Branco ³ , Luis Borrego, Fernando V. Antunes, Pablo Lopez-Crespo	148: Propagation of notch fatigue crack on maraging steel under biaxial conditions	https://youtu.be/ZUTS0_Jhtjw
14:50 – 15:00	<u>Muhammad Ajmal</u> , Cristina Lopez-Crespo, Alejandro. S. Cruces, Fernando V. Antunes, Pablo Lopez-Crespo	166: Fatigue crack propagation studies based on the plastic component of the CTOD evaluated from Digital Image Correlation data	https://youtu.be/Nj3sJRizoM8
15:00 – 15:10	<u>Bineet Maurya</u> , Sonalisa Ray	161: Nano-mechanics based crack growth characterization of concrete under fatigue loading	https://youtu.be/tRi7Uk6PZ2I
15:10 – 15:20	<u>Larisa Stepanova</u> , Ekaterina Yakovleva	164: Nonlinear eigenvalue problems emerging from nonlinear fracture mechanics problems	https://youtu.be/HOE7FjrbkIA
15:20 – 15:30	<u>Fernando Antunes</u> , Diogo Neto, Micael Borges	150: Effect of residual stresses on fatigue crack growth	https://youtu.be/3r_GaD42e7k