



ESIS Newsletter 72, December 2024

In this issue

ESIS Officers	3
Editorial by the ESIS President.....	5
ECF24 Report.....	6
1st Biennial ESIS-CSIC Conference on Structural Integrity (BECCSI).....	11
Five Elsevier journals affiliated with ESIS.....	13
Procedia Structural Integrity.....	14
OA Journals affiliated with ESIS	16
Special Issues 2024-2025.....	17
National Committees.....	19
CZECH REPUBLIC	19
FINLAND	21
GERMANY.....	21
ITALY	23
SERBIA.....	24
SPAIN	26
SWITZERLAND	26
Technical Committees.....	27
TC02: MICROMECHANISMS	27
TC03: FATIGUE OF ENGINEERING MATERIALS AND STRUCTURES	27
TC04: POLYMERS, POLYMER COMPOSITES AND ADHESIVES	32
TC08: NUMERICAL METHODS.....	32
TC10: ENVIRONMENTALLY ASSISTED CRACKING.....	32
TC13: EDUCATION AND TRAINING.....	33
TC14: INTEGRITY OF BIOMEDICAL AND BIOLOGICAL MATERIALS	33



TC15: STRUCTURAL INTEGRITY OF ADDITIVELY MANUFACTURED COMPONENTS	34
TC16: FINITE FRACTURE MECHANICS	35
TC20: STRUCTURAL INTEGRITY AND PRESERVATION/RESTORATION OF HISTORICAL BUILDINGS	35
TC21: HYDROGEN EMBRITTLEMENT AND TRANSPORT	36
ESIS Publishing House (ESIS – PH)	42
ESIS Preprint Service (ESIS – PS).....	43
ESIS YouTube channel (ESIS – YT).....	43
Calendar of ESIS events & TC Meetings.....	44
Calendar of Conferences & Workshops	44
ESIS Procedures and Documents	45
How to become an ESIS member	46

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Editorial by the ESIS President

Dear friends,

Year 2024 is almost over. ESIS activities were intensive, including a number of supported conferences and events, as you can see in this issue of Newsletter. I guess you all know that ECF24 was a big success and yet another great ECF with over 600 participants and presented papers. My sincere congratulations to Željko Božić and his team for organizing such an event. Now it is time for publishing - PSI and soon special issues in our affiliated journals. More details in the report prepared by Željko Božić.



Let me remind you that the next ECF will be in Athens in September 2026 marking two jubilees, 25th conference and 50th anniversary of the 1st one in Poitiers in 1976. I am also glad to announce the following two conferences, as decided by the ESIS Council in Zagreb. Sevilla will host ECF26 in 2028, and Rome will host ECF27 in 2030. This unusual decision was enabled by unanimous voting before the vote for two strong bids, in which it was decided that the bid with more votes gets ECF26 in 2028, and the bid with less votes ECF27 in 2030. So, no more bids before Sevilla in 2028. One should notice that all 44 eligible members of ESIS Council were present and took the vote!

The ExCo had two meetings in 2024, during ECF24 and on 17th November in Belgrade, on the occasion of the 12th Conference of Serbian Society for Structural Integrity and Life (DIVK). Besides usual business, ExCo decided to publish Newsletter once a year starting from 2025.

Yet another good news is the signing of the Memorandum of Understanding on 8th November 2024 in Dongguan during the International Symposium on Structural Integrity (ISSI2024), between ESIS and China Structural Integrity Consortium (CSIC). The most important aspect of this MoU is that biennial ESIS-CSIC conferences on Structural Integrity (BECCSI) are agreed, starting in 2025 in Europe and then hosting it mutually every second odd year. Belgrade, the capitol of Serbia was chosen as the first venue and DIVK as the local organizer next November, 25-28th.



Profs. Aleksandar Sedmak and Shan-Tung Tu signing the MoU.

Aleksandar Sedmak

ECF24 Report

The 24th European Conference on Fracture, ECF24, was held on-site in Zagreb, Croatia, with possible online participation, from 26 - 30 August 2024. The ECF24 Conference was organised by the European Structural Integrity Society (ESIS) and by the Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb. ECF24 managed to bring together 650 scientists and engineers from 54 countries from around the world, with the highest number of participants from Japan (67), Germany (63), Italy (48), France (39), UK (38) and China (37).

The ECF24 Conference was a forum for discussion of the present and future trends in experimental, analytical and numerical fracture mechanics, fatigue, structural integrity assessment, failure analysis, and other important topics in the field. The participants of the ECF24 Conference had the opportunity to interact and exchange ideas with leading researchers across a wide range of disciplines and get acquainted with the state of the art in the theory and applications of fatigue and fracture mechanics.

Conference Chair



Željko Božić

Venue

The conference was organized at the Mozaik Event Center in Zagreb, Croatia.



Nine Plenary Lectures were presented at the ECF24 Conference by distinguished scientists and researchers. 90 parallel sessions were carried out, with 535 Oral presentations (50 Online). 73 Poster presentations were given. 17 Thematic Symposia were organized, 14 of them by ESIS Technical Committees.

Sessions: [LINK](#)

Program: [LINK](#)

Plenary speakers

Damage Tolerance and Structural Integrity of Additive Manufactured Engineering Components - Challenges and Opportunities

Raj Das
Simulation & Modelling, Centre for Additive Manufacturing
School of Engineering, RMIT University, Melbourne, Australia



Scientific dissemination in structural integrity: from the dawn of civilization to web 3.0

Francesco Iacoviello
Università di Cassino e del Lazio Meridionale
Cassino (FR), Italy



Integrity and shape control of cold spray additive manufactured deposits

Sara Bagherifard
Politecnico di Milano
Department of Mechanical Engineering, Milan, Italy



Recent advances in understanding the gigacycle fatigue strength of a cast aluminum alloy and a titanium alloy

Thierry Palin-Luc
Director of the Institute of Mechanics and Mechanical Engineering
Arts et Metiers Institute of Technology, Bordeaux campus, France



Engineering failure analysis as a tool for process improvement

Richard E. Clegg
Honorary Editor-in-Chief, Engineering Failure Analysis
Queensland University of Technology, Australia



Multiscale Modelling - from Atoms to Components

Siegfried Schmauder
University of Stuttgart
Institute for Materials Testing, IMWF



Local fatigue approaches: A tool for the transferability between materials and structural component scales

Abílio De Jesus
University of Porto
Department of Mechanical Engineering



Combining Non-Extensive Statistical Mechanics with Natural Time Analysis to predict entrance of mechanically loaded systems into their critical stage

Stavros K. Kourkoulis
National Technical University of Athens
School of Applied Mathematical and Physical Sciences



Mechanical failures and material degradation in marine environment

Goran Vukelić
University of Rijeka
Faculty of Maritime Studies, Croatia



Main figures

680 Extended Abstracts accepted in total

9 Plenary Lectures

17 Thematic Symposia

90 Parallel sessions

535 Oral presentations (50 Online)

73 Posters presented

ESIS support for researchers

The ExCo has agreed that ESIS will support the active participation of scientists to ECF24 by waiving the Conference fee for up to 40 delegates who require financial assistance to attend.

Preference was given for young researchers, but consideration was also given to retirees without travel funds. A total of 39 delegates had their registration fees supported by ESIS. ESIS will cover the cost of the in-presence registration fees for the researchers from Ukraine that are included in a list proposed by the Ukrainian Fracture Group chairman (3 registration fees). The cost of the remote participation (maximum 25) from countries involved in political issues will be covered by ESIS.

ESIS awards ECF24

Griffith medal - Zhiliang Zhang

Wöhler medal - Siegfried Schmauder

Award of Merit - Francesco Iacoviello

Honorary Membership - Thierry Palin Luc

ESIS Fellows: Grzegorz Lesiuk, Tuncay Yalcinkaya, Stanislav Seitzl, Jianying He, Sabrina Vantadori, Miloš Đukić, Željko Božić

Young Scientist awards:

The best paper (1000 €): Magdalena Eškinja

The runner-up (500 €): Aleksa Milovanović

The best presentation: Simone Murchia, Certificates: Zhou Xu, Vitalii Antoncehniko, Rita Dantas, Sofia Pelizzoni, Andrea Zanichelli, Marcello Laurenti, Carolina Schillaci, Luca Vecchiato, Saya Ajito

Award for the country with the most participants: Japan

Best poster: Iva Racki, Soma Kato, Eleni Koumantou



TCs symposia organizer award

Gold Medal: Milos Djukic, TC21 Symposium: HYDROGEN EMBRITTLEMENT IN METALLIC MATERIALS: PIPELINE TRANSPORT, HYDROGEN STORAGE, AND OTHER APPLICATIONS

Silver Medal: Sabrina Vantadori, TC3 Symposium: FRACTURE AND FATIGUE FAILURE OF ENGINEERING MATERIALS AND STRUCTURES

Bronze Medal: Bamber Blackman and Andreas J. Brunner, TC4 Symposium: FRACTURE AND FATIGUE FRACTURE AT ALL SCALES IN POLYMER-BASED MATERIALS, ADHESIVE JOINTS AND STRUCTURAL COMPONENTS

Book of abstracts & Publications

The Book of abstract was published by the University of Zagreb publishing house. The full book can be downloaded using the link: [LINK](#)

Conference full papers (196 in total) are currently under review process for publication in Procedia Structural Integrity, Elsevier.

Selected papers will be considered for publication in special issues of four ESIS Affiliated journals.

9th ESIS Summer School “Fatigue and Fracture Modelling and Analysis” was organized prior to the ECF24 Conference on 24th and 25th August 2024, and 50 attendees participated in it. The Summer School gave an opportunity for scientists, researchers and engineers from academia and industry to get acquainted with fundamental aspects of fracture mechanics, recent trends in practical applications of fatigue and fracture models, and advanced approaches such as multiscale materials modelling and local approaches for fatigue design.

We wish to thank to all the lectures for their excellent lectures and support of this event:

Aug 24, 2024 09.00 - 12.00	Multiscale Materials Modeling	Siegfried Schmauder
Aug 24, 2024 14.00 - 17.00	Simulation of the multiaxial fatigue strength of metallic alloys	Thierry Palin-Luc
Aug 25, 2024 09.00 - 12.00	Fatigue crack growth simulation by XFEM	Aleksandar Sedmak Aleksandar Grbović
Aug 25, 2024 14.00 - 17.00	Advanced Local Approaches for Fatigue Design	Filippo Berto

Videos

535 Oral presentations of Extended Abstracts and Plenary and Summer School lectures will be available in ESIS YouTube channel.

Full online participation in the ECF24 Conference and Summer School was enabled for participants who could not come to Zagreb and participate in-presence. About 50 participants gave their presentations online and eight Summer School attendees participated online.

Conference Photo Gallery is available on the following link: [LINK](#)



We take this opportunity to thank to all participants of the ECF24 Conference for their contribution and many high-quality abstracts. Many thanks to organizers of the Thematic Symposia who helped to structure ECF24 as an efficient and smooth-running event. We would like to thank to ESIS ExCo Members, to all my colleagues and all persons who have been involved in organizing the ECF24 Conference. Particularly, we wish to thank to the Organizing Committee Members for their great effort, support and commitment.

Željko Božić

New Conference - First Announcement

1st Biennial ESIS-CSIC Conference on Structural Integrity (BECCSI)

Venue - Metropol Palace Hotel, Belgrade, Serbia,

Date - November 25-28, 2025



About the Conference

European Structural Integrity Society (ESIS) and China Structural Integrity Consortium (CSIC) are proud to announce the biennial ESIS-CSIC conferences on Structural Integrity (BECCSI). This initiative is established following the signing of the Memorandum of Understanding on the 8th of November 2024 in Dongguan during the 2024 International Symposium on Structural Integrity (ISSI2024). The BECCSI will alternate biennially between Europe and China, starting in 2025 in Europe. Belgrade, the capital of Serbia was chosen as the first Venue and Serbian Structural Integrity Society (DIVK) as the local organizer.



Welcome to Belgrade and Serbia.



Conference venue: Metropol Palace Hotel, Belgrade - Serbia.

The three-day conference will create a conducive environment for participants to network with international structural integrity leaders. It will facilitate subsequent discussions and the exchange of diverse views and information among attendees. Special focus of the conference will be on young researchers, including a competition for the Best Student Paper Awards.

Presentations and posters will cover a range of fracture and fatigue topics with a special focus on:

- Structural integrity for advanced manufacturing
- Reliability-centred manufacturing
- Fatigue, cracking and fracture under extreme conditions, including corrosion
- Innovative non-destructive, miniature specimen and small-invasive testing, and monitoring
- Multi-scale material testing, modelling and analysis
- Structural health monitoring and life extension
- Artificial intelligence and big data
- Numerical simulation of fracture and fatigue process
- Engineering damage mechanics
- Aircraft mechanics and control

Abstracts should be submitted by July 1, 2025. More info will soon be available on <http://www.beccsi2025.com>.

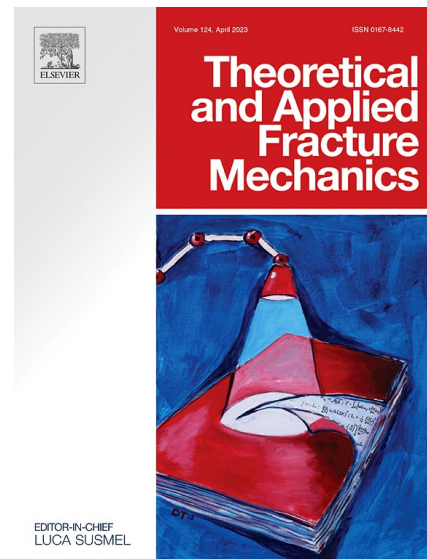
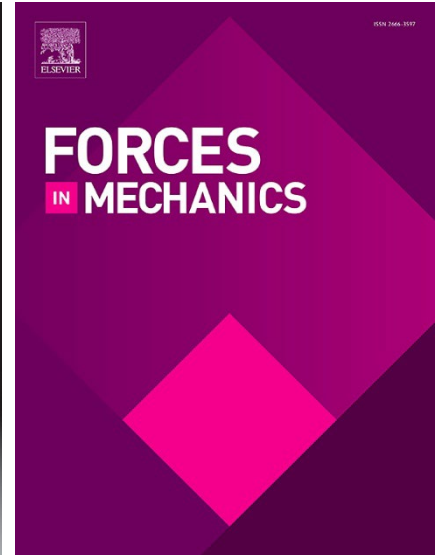
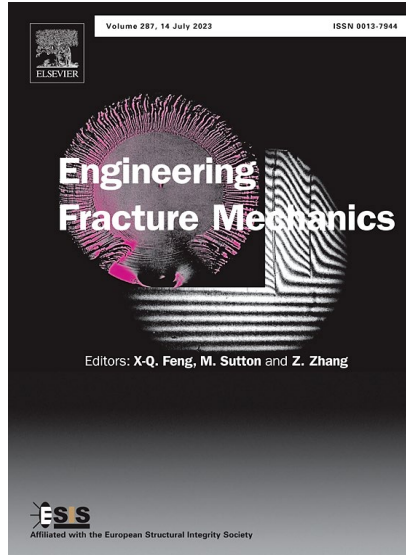
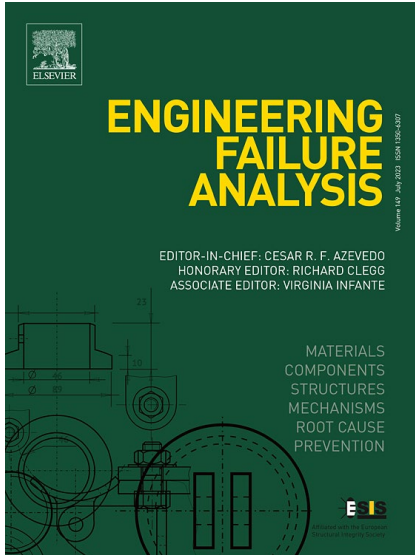
The 1st BECCSI will be chaired by Profs. Aleksandar Sedmak (Faculty of Mechanical Engineering, University of Belgrade, President of ESIS), and Shan-Tung Tu (East China University of Science and Technology, Chairman of CSIC). To register interest in the first instance, or to receive updates about the 1st BECCSI, please contact Dr. Branislav Djordjevic (brdjordjevic@mas.bg.ac.rs) and Prof. Jian-Feng Wen (jfwen@ecust.edu.cn).

About CSIC and ISSI

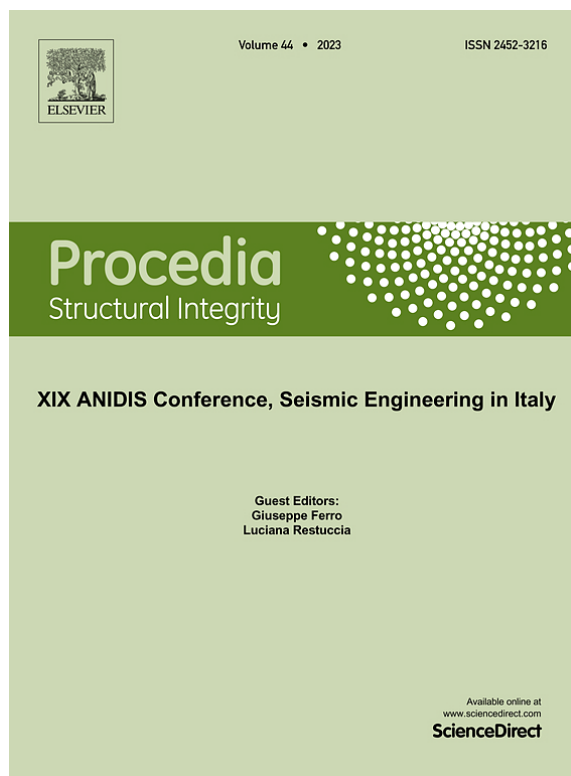
The China Structural Integrity Consortium (CSIC) is a non-profit academic organization dedicated to academic exchanges, scientific research, engineering applications and knowledge dissemination in the field of structural integrity. Its history can be traced back to 2002, initiated by several universities and research institutes that have long been engaged in collaborative research on structural integrity, particularly in the safety technology of pressure vessels and pipelines. In 2003, the first International Fracture Mechanics (FM) Symposium was held in Shanghai. As the discipline and its application areas expanded, in 2010, the FM series of conferences evolved into the International Symposium on Structural Integrity (ISSI), with member institutions taking turns to organize. In November 2012, after thorough discussions and consultations by the Materials Institution, Pressure Vessel Institution, and Failure Analysis Institution of the Chinese Society of Mechanical Engineering, it was decided to jointly launch the CSIC. The most recent ISSI was held in Dongguan, 5-8th November 2024.



Five Elsevier journals affiliated with ESIS



Procedia Structural Integrity



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2024 Issues

Issue 65, pages 324

The 17th International Conference on Mechanics, Resource and Diagnostics of Materials and Structures (MRDMS 2023)

Edited by Sergey Smirnov, Aleksandar Sedmak, Evgenii Prosviryakov, Yuliya Khudorozhkova

Issue 64, pages 2262

SMAR 2024 – 7th International Conference on Smart Monitoring, Assessment and Rehabilitation of Civil Structures

Edited by Enzo Martinelli, Moslem Shahverdi

Issue 63, pages 58

22nd International Conference on Modelling in Mechanics 2024

Edited by Martin Krejsa, Majid Movahedi Rad, Aleksandar Sedmak, Bartłomiej Blachowski, Pratanu Ghosh

Issue 62, pages 1144

II Fabre Conference – Existing bridges, viaducts and tunnels: research, innovation and applications (FABRE24)

Edited by Walter Salvatore, Andrea Dall'Asta

Issue 61, pages 340

3rd International Workshop on Plasticity, Damage and Fracture of Engineering Materials (IWPDF 2023)

Edited by Benjamin Klusemann, Emilio Martinez-Paneda, Tuncay Yalcinkaya

Volume 60, pages 734

Third International Conference on Structural Integrity 2023 (ICONS 2023)

Edited by S.A. Krishnan, A. Nagesha, A. Moitra, M. Vasudevan, Raghu V Prakash

Volume 59, pages 798

VII International Conference “In-service Damage of Materials: Diagnostics and Prediction (DMDP 2023)

Edited by Oleg Yasniy, Olha Zvirko, Hryhoriy Nykyforchyn, Volodymyr Iasnii

Volume 58, pages 156

7th International Conference on Structural Integrity and Durability (ICSID 2023)

Edited by Željko Božić, Siegfried Schmauder, Katarina Monkova, George Pantazopoulos, Sergio Baragetti, Francesco Iacoviello

Volume 57, pages 904

Fatigue Design 2023 (FatDes 2023)

Edited by Fabien Lefebvre

Volume 56, pages 198

Structural Integrity and Reliability of Advanced Materials obtained through Additive Manufacturing (SIRAMM23)

Edited by Roberto Brighenti, Liviu Marsavina, Aleksandar Sedmak, Filippo Berto, Lubos Nahlik

Volume 55, pages 222

ESICC 2023 – Energy efficiency, Structural Integrity in historical and modern buildings facing Climate change and Circularity

Edited by Chiara Bertolin, Inês Flores-Colen, Vittorio Di Cocco, Stavros K. Kourkoulis, Aleksandar Sedmak

Volume 54, pages 644

International Conference on Structural Integrity 2023 (ICSI 2023)

Edited by Pedro Moreira, Paulo Tavares

Volume 53, pages 416

Third European Conference on the Structural Integrity of Additively Manufactured Materials (ESIAM23)

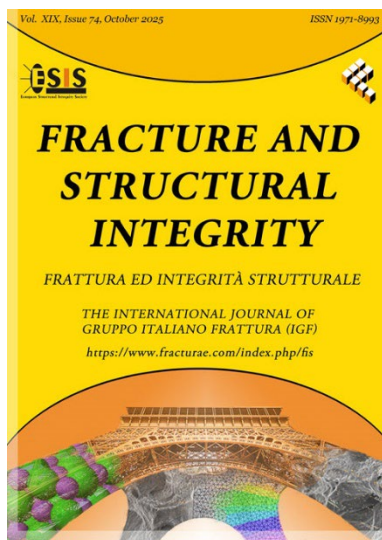
Edited by Filippo Berto, Francesco Iacoviello, Abílio De Jesus, Jan Torgersen, Sabrina Vantadori

Volume 52, pages 794

Fracture, Damage and Structural Health Monitoring

Edited by Ferri Aliabadi, Zahra Sharif Khodaei

OA Journals affiliated with ESIS



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In order to be included in the Open Access journal panel affiliated to ESIS, a journal must respect the following criteria:

- all the papers are submitted to a reviewing process;
 - the journal is completely free of charge, both for readers and for authors;
 - the journal is not published by a professional Publisher;
 - the journal is published in English and is included in DOAJ (Directory of Open Access Journal).
- Other indexations (e.g., Scopus and ISI) are welcome.

Special Issues 2024-2025

Journal	Title	Event	Editors	Organized by
Int J Fatigue <i>virtual SI</i>	Fatigue Crack Paths 2024	The 8th International Conference on Crack Paths (CP 2024)	S. Vantadori F. Iacoviello A. Carpinteri	TC03
Int J Fatigue <i>virtual SI</i>	New Analytical, Numerical and Experimental Approaches in Fatigue - ECF23	European Conference on Fracture 2022 (ECF23)	P. Moreira L. Reis S. Vantadori	ESIS
Int J Fatigue <i>virtual SI</i>	Characterisation of Crack/Notch Tip Fields 6	The 6th IJFatigue and FFEMS Joint Workshop on Characterisation of Crack Tip Fields	N. James L. Susmel Y. Hong M. Vormwald T. Palin-Luc Ž. Božić	Germany N.G.
Eng Failure Analysis <i>virtual SI</i>	Structural Integrity and Durability ICSID2023	The 7th International Conference on Structural Integrity and Durability (ICSID 2023)	S. Schmauder R. Clegg K. Monkova F. Iacoviello	ESIS
Eng Failure Analysis <i>virtual SI</i>	Understanding Environmentally Hydrogen Assisted Cracking of Metals: Key Towards a Sustainable Future	The 5th International Conference on Structural Integrity (ISCI 2023)	T. Depover M. L. Martin H. Matsunaga M. B. Djukic	TC21
Eng Failure Analysis <i>virtual SI</i>	Failure Analysis and Structural Integrity – Special issue on the European Conference on Fracture 2022	European Conference on Fracture 2022 (ECF23)	P. Moreira L. Reis V. Shlaynnikov V. Infante	ESIS
Eng Failure Analysis <i>virtual SI</i>	2nd International Conference on Risk Analysis and Safety of Complex Structures and Components (IRAS2022)	The 2nd International Conference on Risk Analysis and Safety of Complex Structures and Components (IRAS2022)	J. Correia A. Sedmak V. Moskvichev	TC12
Eng Frac Mech <i>virtual SI</i>	Crack Paths 2024	The 8th International Conference on Crack Paths (CP 2024)	S. Vantadori F. Iacoviello A. Carpinteri	TC03
Eng Frac Mech <i>virtual SI</i>	Advances in fracture of PCA	The 9th International Conference on Fracture of Polymers, Composites and Adhesives	B.R.K. Blackman A.J. Brunner L. Warnet	TC04
Eng Frac Mech <i>virtual SI</i>	Recent Advances in Fracture Research of Materials and Structures	European Conference on Fracture 2022 (ECF23)	A. Sedmak L. Marsavina S. Schmauder L. Reis	ESIS
Eng Frac Mech <i>virtual SI</i>	1st Virtual ESIS TC4 Conference on Fracture of Polymers, Composites and Adhesives	The 9th International Conference on the Fracture of Polymers, Composites and Adhesives	A. Brunner B. Blackman A. Vassilopoulos L. Warnet	TC04
Eng Frac Mech <i>virtual SI</i>	Fracture behavior of additively manufactured materials and structures	The 1st European Conference on Fracture (VECF1)	L. Marsavina P. Moreira F. Berto C. Gao	ESIS
Theor and Appl Fract Mech <i>virtual SI</i>	Innovative Experimental, Analytical and Numerical Tools in Fracture Research	European Conference on Fracture 2022 (ECF23)	A.J. Brunner S.K. Kourkoulis L. Reis L. Banks-Sills B. Blackman	ESIS
Science Talks <i>virtual SI</i>	IGF27: 27th International Conference on Fracture and Structural Integrity	The 27th International Conference on Fracture and Structural Integrity	F. Berto F. Iacoviello V. Di Cocco S. Vantadori	Italy N.G.
Forces in Mechanics <i>virtual SI</i>	New strategies for improving structural and chemical performances of welded joints	-	P. Ferro	Italy N.G.

Journal	Title	Event	Editors	Organized by
Compos Struct <i>virtual SI</i>	Crack paths in composite materials	The 8th International Conference on Crack Paths (CP 2024)	S. Vantadori F. Iacoviello A. Carpinteri	TC03
Progress in Engineering Science <i>virtual SI</i>	Novel analytical, numerical and experimental approaches in failure analysis - CP2024	The 8th International Conference on Crack Paths (CP 2024)	S. Vantadori F. Iacoviello A. Carpinteri	TC03
Med Eng Phys <i>virtual SI</i>	Medical Devices: Materials, Mechanics and Manufacturing	The 2nd International Conference on Medical Devices: Materials, Mechanics and Manufacturing (ICMD3M 2023)	V. Silberschmidt S. Korossis	TC14

National Committees

CZECH REPUBLIC

The end of September attracted to Prague world experts in materials modeling, who took part in the 11th International Conference on Multiscale Materials Modeling ([MMM11](#)). This largest international conference in the field was held in the Prague Congress Center on September 22-27, 2024. The MMM11 was organised by Institute of Physics of Materials of the Czech Academy of Sciences (Chairman: Assoc. Prof. Roman Groger) and was supported by **European Structural Integrity Society** (ESIS –Czech Republic branch, Assoc. prof. Stanislav Seitzl).



The MMM11 conference offered 585 lectures by scientists, postdoctoral fellows, and students in 14 symposia, including 7 plenary lectures and 56 keynote lectures for 772 participants. Among the plenary speakers were the top scientists in the field, such as Claire Wilhelm from the Curie Institute & CNRS in France, Bob Coecke from Quantinuum Ltd. UK & Perimeter Institute in Canada, and Tomáš Jungwirth from the Institute of Physics of the Czech Academy of Sciences in Prague. The complete list of plenary speakers can be found on the [MMM11](#) website. In addition to the lectures, 156 posters were presented in two poster sessions.

And how does the organizer Roman Gröger from the Institute of Physics of Materials of the Czech Academy of Sciences, summarize the conference?

„This conference was held in the Czech Republic for the first time. We aimed to open it up to more colleagues focusing on studying biomaterials, polymers, and functional materials for energy harvesting, conversion and storage. New symposia were held that focus on developing machine learning models and their applications in materials research, as well as on using quantum computers. The conference was rated highly thanks to focused scientific discussions, trouble-free organization, and pleasant weather.“

Until February 2025 the conference participants have the opportunity to submit their papers for peer-review into a [special issue](#) of the journal Modelling and Simulation in Materials Science and Engineering (MSMSE).

The next Multiscale Materials Modeling Conference (MMM12) will be held in November 2026 on the Jeju Island of South Korea.



Eleventh international conference on **Materials Structure and Micromechanics of Fracture (MSMF11)** is going to be organised by chairmen – Miroslav Černý and Libor Pantělejev from the Faculty of Mechanical Engineering, Brno University of Technology, under the auspices of the European Structural Integrity Society, recommended by the Federation of European Materials Societies. Co-organised by the Czech Society for New Materials (Libor Kraus) and Technologies and the Czech Branch of European Structural Integrity Society (Stanislav Seitzl).



MSMF conferences are focused on fundamental relations between structural and mechanical characteristics of materials. Papers dealing with structure and damage modelling based on atomistic and micro-mechanistic approaches are particularly welcome.

List of topics

- Atomistic studies on deformation and fracture.
- Deformation and fracture models based on crystal defects behaviour.
- Mathematical modelling microstructure, deformation and fracture.
- Multiaxial deformation and fracture, experiment and modelling.
- Nanomaterials: technology, microstructure, mechanical properties, modelling.
- Biomaterials: microstructure, mechanical properties, modelling.
- Surface and interface microstructure and properties.
- Advanced experimental and theoretical methods for microstructure investigation.
- Experimental studies on the relation between microstructure and mechanical properties.
- Micro-mechanisms of fracture and fatigue (**mini-symposium ESIS TC2**).

E-mail: info@msmf-brno.eu

Web pages: <https://www.msmf-brno.eu>

Stanislav Seitl

FINLAND

ESIS Finland has officially met twice during the year 2024

- Member survey, January 2024
- Fall meeting
- Annual meeting, 29.11
- 2025-2026 chairman: Sakari Pallaspuro (University of Oulu), vice-chairman: Sebastian Lindqvist (VTT)

Planned 2025 activities based on the annual meeting:

- Member survey, January 2025
- ESIS Finland on-site meeting, time and place to be decided in early spring 2025, meeting during Q2-Q3 / 2025.
- Commissioned discussions with the Finnish Association for Structural Mechanics for joint conference/seminar activities during the period 2025-2026.
- Annual meeting, Q4/2025

Sakari Pallaspuro

GERMANY

Activities of the German group since January 2024 and scheduled activities:

Advanced training seminar

19.02.2024 in Kassel

Topic: “Numerical analysis of cracks and crack growth simulation”

Contents:

Current methods of crack tip loading analysis, fundamentals of crack growth simulation with the FEM, challenges of mixed-mode loading, fatigue crack growth, examples of engineering applications, monitoring of crack tip strain with DIC, multi-parameter concepts in fracture mechanics,

crack tip detection and evaluation from DIC data, calculation of SIF and simulation of 3D crack growth in anisotropic material, handling of operating load spectra, combination of LCF- and HCF-loading, handling of variable mode-mixity, phase field modeling of fracture and crack growth, dynamic crack propagation.

Annual Meeting

20.02. - 21.02.2024 in Kassel

Topic: “Fracture mechanical material and component assessment: stress analysis, test methods and applications”

Contents:

The evaluation and avoidance of fracture and damage processes play an essential role in the construction and design of components and systems as well as for the development of materials suitable for use in order to ensure technical safety, service life and economic efficiency. The aim of the meeting is to provide information on scientific progress and modern technical developments in the fields of fracture and damage mechanics and to exchange experiences.

Working Group Meeting “Simulation”

18.04.-19.04.2024 in Aachen

Contents:

Different numerical approaches for the simulation and prediction of damage and fracture were presented in talks and discussed in detail. The focus was inter alia on welded components, metal sheets, impact loading, rate-dependent effects and non-proportional cyclic loading. The results of the simulations were basically validated on the bases of experimental findings.

Working Group Meeting “Mixed-Mode problems”

18.07.2024 in Zittau

Contents:

Talks were given on theoretical as well as experimental and application-oriented topics. Various material classes are in the focus, i.e., fiber reinforced polymers, aluminum alloys and steel. The experimental investigations are predominantly performed under multi-axial loading conditions in both static and periodic regimes. Effects like crack closure, crack path stability and the impact of high temperature were discussed. On the methodological side, DIC, multiaxial testing and modern numerical methods such as the virtual element method (VEM) are explored.

Advanced training seminar

17.02.2025 in Köln

Topic: “Digitalization and artificial intelligence (AI) in fracture mechanics”

Annual Meeting

18.02. - 19.02.2025 in Köln

Topic: “Fracture mechanical material and component assessment: stress analysis, test methods and applications”

Working Group Meetings...

...will be held 2025 on the topics “Mixed-Mode problems”, “Simulation”, “Fracture mechanics of welded joints” and “Material fatigue”.

Dates will be announced.

Andreas Ricoeur

ITALY

In 2024, IGF, in cooperation with the ESIS TC3, has organized the “8th International Conference on Crack Paths (CP2024)” ([LINK](#)). The CP2024 Conference has been held at the Hotel Aqua in Rimini (Italy) from 10th to 12th September 2024. This Conference follows the past Conferences held every 3 years in: Parma (2003 and 2006), Vicenza (2009), Gaeta (2012), Ferrara (2015), Verona (2018), and in remote mode (due to the disorders caused by the pandemic situation) in 2021. It can be stated that it has been a successful event. During the Conference, attended by 125 participants, 95 research works coming from 30 different countries have been presented, and 4 invited lectures have been delivered by: Alan R. Pelton (G.RAU Inc., USA), Elio Sacco, (University of Naples Federico II, Italy), Reza Talemi (KU Leuven, Belgium) and Nicholas Fantuzzi (University of Bologna, Italy). The presentations have been scheduled in 22 sessions, covering a wide range of topics related to crack path under both static and fatigue loading.



Members of different industrial laboratories and scientists from all over the world have contributed with presentations on any of the following topics (in the case of both static and fatigue loading):

Experimental Determination of CP

- Theoretical Prediction of CP
- Integrity Assessments based on CP Evaluation
- Microscopic Aspects of CP
- CP of Surface Cracks
- CP of Short Cracks
- Effect of Large Scale Yielding on CP
- Effect of Material Inhomogeneities on CP
- Effect of Non-Proportional Cyclic Loading on CP
- Effect of Environmental Conditions on CP
- CP in Advanced Materials
- Laboratory Methods of Controlling CP
- In-Service Inspection of CP
- Application of CP Concepts and Data in Design
- CP in Additive Manufacturing Processes
- Industrial Application of CP Concepts and Data

A dedicated issue on Procedia Structural Integrity will be published and a volume with the collection of the video recordings of the presentations has been published in ESIS Publishing House ([LINK](#)). Finally special issues will be published in five international journals.

In 2024, IGF published 86 papers of “*Frattura ed Integrità Strutturale*” ([LINK](#)) in four different issues (January, April, July and October). At the end of 2024, in order to increase the journal visibility, the journal switched the Italian title with the English one. The new title of the journal is now “*Fracture and Structural Integrity*”.

In 2025 (September 15-18), IGF will organize in Catania, Italy, and web the joint conference *IGF28 - MedFract3, 28th International Conference on Fracture and Structural Integrity - 3rd Mediterranean Conference on Fracture and Structural Integrity* ([LINK](#)).

The main important dates are:

- Registration: always open
- Symposia proposal: 01.09.2024 - 31.12.2024
- Abstract Submission: 01.01.2025 to 30.05.2025
- Acceptance notification: 10.06.2025
- Early bird registration and payment: 30.07.2025
- Conference: 15.09.2025 - 18.09.2025
- Paper submission (after the conference): 15.10.2025
- Papers acceptance: 30.10.2025



Filippo Berto

SERBIA

12th Annual Conference of Serbian Society of Structural Integrity and Life (www.divk12.com)

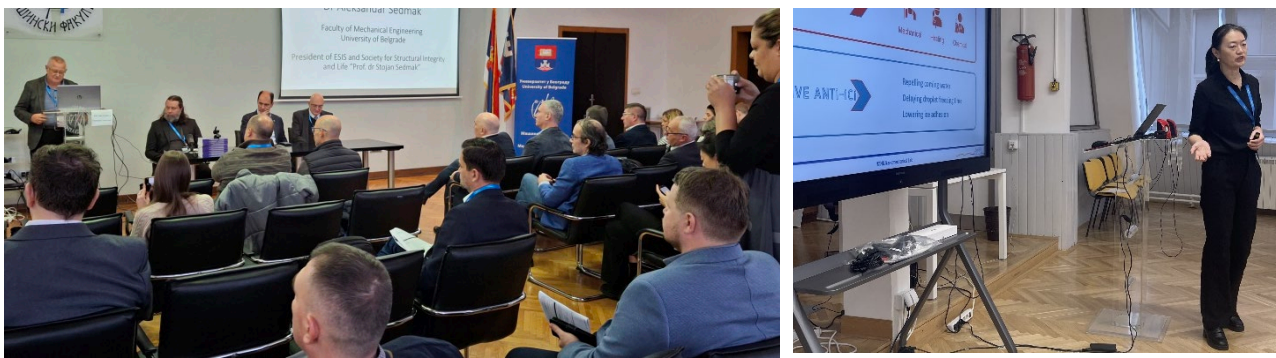
The twelfth annual conference (DIVK12) was held from 17-19. November 2024 in Belgrade, at the Faculty of Mechanical Engineering. The total number of participants was 160 (77 from Serbia). The program of the meeting was realized in three days, starting from Sunday, November 17, when a welcome cocktail was arranged with the registration of the participants, along with the working part of the meeting on November, 18 and 19. Plenary lectures were delivered by Jose Correia, Filippo

Berto, Francesco Iacoviello, Miloš Đukić, Grzegorz Lesiuk, Bojan Međo and Dorin Radu. A special lecture was also held by Aleksandar Sedmak in honor of Prof. Dr. Mladen Berković (1936-1999).

During the conference gala dinner, the DIVK awards dedicated to the legends of fracture mechanics were delivered: "Stojan Sedmak" to Blagoj Petrovski, "Aleksandar Radović" to Vencislav Grabulov, "Mladen Berković" to Aleksandr Sedmak, Tihoslav Tošić to the IMS Institute, "Marko Rakin" to Bojan Međo. Special awards were delivered to Jovo Jarić, the guest of honour, for contribution to theoretical fracture mechanics, to Filippo Berto for extraordinary contribution in fracture mechanics

and fatigue, and to Jianying He for nanostructured materials and nanotechnology, and to Francesco Iacoviello for continuous support of DIVK activities. The Best Young Scientist Award was delivered to Sheng-wen Tu, and the best poster award Kwang-Bok Shin.

In 9 thematic sessions, all important aspects of fracture mechanics and structural integrity were discussed, with an emphasis on innovation and new trends, artificial intelligence, a multidisciplinary approach, as well as case studies, like risk and safety analysis, taking into account environmental impacts, behavioural materials, their characterization and specificity of constructions. The quality of the plenary lectures, as well as the lecturers on both working days of the meeting, contributed to the opening of some new topics and an insight into new trends in the assessment of the integrity of structures - which was also the basic idea of this meeting. The e-version of book of abstracts is available on the website <https://www.divk12.com/divk12/publications>, while the call for papers in the special issue of the journal *Procedia Structural Integrity* is open until 25.12.2024. Selected authors will be sent call for special issues of *Engineering Fracture Mechanics* and *Structural Integrity and Life*.



Opening ceremony and Prof. Jianying He lecturing.



Professors Božić, Kozak, Iacoviello and Berto and Professors Filippo Berto and Simon Sedmak.



Professor Daniela Scorza.



Professor Grzegorz Lesiuk and Professors Dorin Radu and Simon Sedmak.

Aleksandar Sedmak

SPAIN

2004:

The 40th Conference of the Spanish Group of Fracture was held at Palma de Mallorca from 6 to 8 March 2024. The conference chairs were Prof. Eugenio Giner from Polytechnic University of Valencia and Prof. Orlando Santana from Polytechnic University of Catalonia. The opening session was attended by the co-founder of the Spanish Structural Integrity Society - Spanish Group of Fracture, Prof. Manuel Elices Calafat. Three plenary sessions were held by Prof. Luca Andena, from Politecnico di Milano (Italy), Prof. Jaime Domínguez, from University of Seville and Prof. Alexis Rusinek, Université de Lorraine (France). The honour medal of the Spanish Group of Fracture was awarded by Prof. Jesus Alegre, from University of Burgos. Besides, during the conference dinner the Spanish Structural Integrity awards of best presentation of a PhD student, the best poster, the best scientific photograph and the best doctoral thesis were presented. The number of attendees was 123, with 82 oral presentations and 12 poster presentations. Finally, the papers presented at the 40th Spanish Group of Fracture Conference have been published in volumes 7 and 8 of the Spanish Journal of Fracture Mechanics. Both volumes are available on the Society's website [LINK](#).

A more detailed description of these activities can be found in the [attached document](#), and feel free to use the text and photos as you wish.

2025:

The 41st Conference of the Spanish Group of Fracture will be held in Vitoria-Gasteiz from 26 to 28 March 2025. The venue will be the European Congress Center. The conference chair is Prof. Jon Ander Esnaola from University of Mondragon. The webpage of the conference is: [LINK](#). During this event the awards of best doctoral thesis, best presentation of a PhD student, best poster and best photograph will be also held.

Alicia Salazar López

SWITZERLAND

2024: in person meeting, Pilatus Aircraft, Stans, September 5, 2024

2025: in person meeting, EPFL Lausanne, date to be determined (September-October 2025)

Andreas J. Brunner

Technical Committees

TC02: MICROMECHANISMS

2024: Organisation of the Thematic Symposium entitled “Advances in understanding the mechanisms of fracture and fatigue” chaired by Andrey Jivkov, Andrey Shanyavskiy, James Marrow, at the European Conference on Fracture2024, August 26 - 30, 2024, Zagreb – Croatia

2025: Organisation of a Thematic Symposium chaired by Andrey Jivkov, Andrey Shanyavskiy, James Marrow, at the 11th International Conference on Materials Structure and Micromechanics of Fracture (MSMF11), June 23 - 25, 2025, Brno - Czech Republic

Andrey Shanyavsky

TC03: FATIGUE OF ENGINEERING MATERIALS AND STRUCTURES

1. Objectives of TC3

(1.1) **Special Issue of International Journal of Fatigue** entitled “**Fatigue Crack Paths 2024**” (Guest Editors: Sabrina Vantadori, Francesco Iacoviello, Andrea Carpinteri), with papers selected from those presented at the 8th International Conference on Crack Paths (CP2024), 10th to 12th September, 2024 (Rimini - Italy & Web).

(1.2) **Special Issue of Engineering Fracture Mechanics** entitled “**Crack Paths 2024**” (Guest Editors: Sabrina Vantadori, Francesco Iacoviello, Andrea Carpinteri), with papers selected from those presented at the 8th International Conference on Crack Paths (CP2024), 10th to 12th September, 2024 (Rimini - Italy & Web).

(1.3) **Special Issue of Composite Structures** entitled “**Crack paths in composite materials**” (Guest Editors: Nicholas Fantuzzi, Sabrina Vantadori, Francesco Iacoviello, Andrea Carpinteri), with papers selected from those presented at the 8th International Conference on Crack Paths (CP2024), 10th to 12th September, 2024 (Rimini - Italy & Web).

(1.4) **Special Issue of Progress in Engineering Science** entitled “*Novel analytical, numerical and experimental approaches in failure analysis - CP2024*” (Guest Editors: Sabrina Vantadori, Francesco Iacoviello, Andrea Carpinteri), with papers selected from those presented at the 8th International Conference on Crack Paths (CP2024), 10th to 12th September, 2024 (Rimini - Italy & Web).

(1.5) **Special Issue of Fracture and Structural Integrity** entitled “*Special Issue on Crack Paths - CP2024*” (Guest Editors: Vittorio Di Cocco, Camilla Ronchei, Daniela Scorza, Sabrina Vantadori), with papers selected from those presented at the 8th International Conference on Crack Paths (CP2024), 10th to 12th September, 2024 (Rimini - Italy & Web).

(1.6) Issue of **Procedia Structural Integrity** entitled “*8th International Conference on Crack Paths*” (Guest Editors: Francesco Iacoviello, Sabrina Vantadori, Nicholas Fantuzzi, Andrea Carpinteri, Filippo Berto, Luca Vincenzo Ballestra), with papers presented at the 8th International Conference on Crack Paths (CP2024), 10th to 12th September, 2024 (Rimini - Italy & Web).

2. Achievement of objectives

(2.1) Organisation of the Thematic Symposium on “*Fracture and fatigue failure of engineering materials and structure*” (chaired by Professors Sabrina Vantadori, Andrea Carpinteri, Camilla Ronchei, Daniela Scorza, Andrea Zanichelli, Parma, Italy) at the [24th European Conference on Fracture \(ECF24\)](#), Zagreb, Croatia, 26th to 30th August, 2024

(2.2) Organisation of [The 8th International Conference on Crack Paths \(CP 2024\)](#) together with the [Italian Group of Fracture](#), Hotel Aqua in Rimini - Italy and Web, 10th to 12th September, 2024.

Chairpersons: Sabrina Vantadori (Parma, Italy), Francesco Iacoviello (Cassino, Italy), Nicholas Fantuzzi (Bologna, Italy), Andrea Carpinteri (Parma, Italy), Luca Vincenzo Ballestra (Bologna, Italy).



This Conference follows the past Conferences held every 3 years in: Parma (2003 and 2006), Vicenza (2009), Gaeta (2012), Ferrara (2015), Verona (2018), and in remote mode (due to the disorders caused by the pandemic situation) in 2021.



Opening Ceremony.

CP2024 has been organised in a blended mode: all the presentations have been recorded and collected in a volume (with ISBN: 978-88-31482-65-6) published in [ESIS Publishing House](#). Each video has its own DOI.



It can be stated that this Conference has been a successful event. During the Conference, attended by 125 participants, 95 research works coming from 30 different countries have been presented, and 4 invited lectures have been delivered by: Alan R. Pelton (G.RAU Inc., USA), Elio Sacco, (University of Naples Federico II, Italy), Reza Talemi (KU Leuven, Belgium) and Nicholas Fantuzzi (University of Bologna, Italy). The presentations have [been scheduled in 22 sessions](#), covering a wide range of topics related to crack path under both static and fatigue loading.



Professor Alan Pelton.



Professor Elio Sacco.



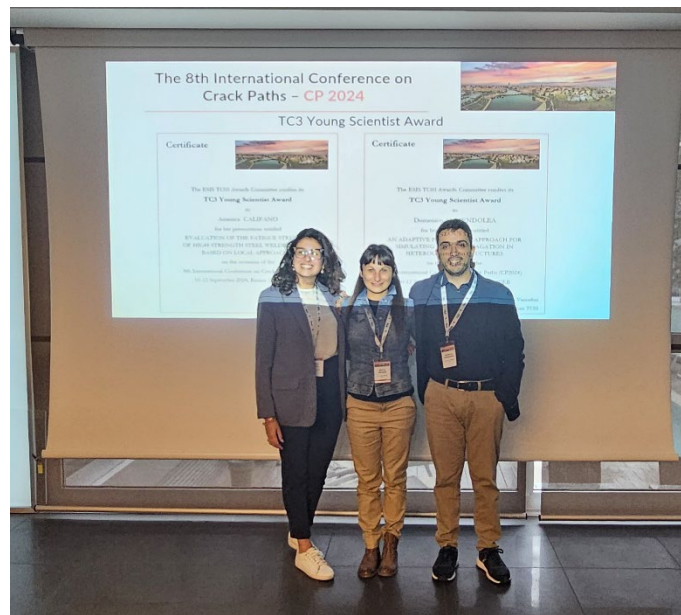
Professor Reza Talemi.



Professor Nicholas Fantuzzi.

The study of crack paths is a journey into the intricate world of material failure. It is a field where the beautiful complexities of microstructures meet the stark reality of structural integrity. Crack paths are rarely straight or predictable and are influenced by a myriad of factors. Understanding these influences is crucial, not only for predicting material failure but also for designing more resilient and durable structures.

During CP2024, Dr America Califano and Dr Domenico Ammendolea have been awarded with the [TC3 Young Scientist Award](#) for their presentations.



America Califano, Sabrina Vantadori, Domenico Ammendolea.

The Proceedings of the Conference will be published on an issue of [Procedia Structural Integrity](#), collecting 59 papers related to many presentations made during the Conference.

This Conference has been sponsored by the Italian Group of Fracture, ESIS, ASTM International, Rumul and University of Parma.

We hope to meet you soon at the next “Crack Paths” Conference and TC3 activities.





Some pictures of the event.

(2.3) Organisation of the Special Session on “*Fatigue and fracture of eco-friendly, green and alternative structural materials*” (chaired by Professors Camilla Ronchei (Parma, Italy), Daniela Scorza (Parma, Italy), Sabrina Vantadori (Parma, Italy), Andrea Zanichelli (Parma, Italy), Łukasz Sadowski (Wrocław, Poland), Grzegorz Lesiuk, (Wrocław, Poland)) at the International Conference on Sustainable Development in Civil, Urban and Transportation Engineering (CUTE 2024), Wrocław, Poland, 14th to 17th October, 2024.

Sabrina Vantadori

TC04: POLYMERS, POLYMER COMPOSITES AND ADHESIVES

2024: 9th ESIS TC4 Conference on Fracture of Polymers, Composites and Adhesives March 24-27, 2024 at Maison de Congrès, Les Diablerets, Switzerland

2024: Spring 2024 Virtual (Teams) meeting, April 11, 2024 / Fall 2024 in person meeting, Dublin, Ireland September 26-27, 2024

2025: Spring 2025: Virtual (Teams) meeting, March 20, 2025 / Fall 2025 in person meeting, Madrid, Spain, date to be determined (September 2025)

2027: 10th ESIS TC4 Conference on Fracture of Polymers, Composites and Adhesives is planned September 19-23, 2027 at Maison de Congrès, Les Diablerets, Switzerland

Andreas J. Brunner

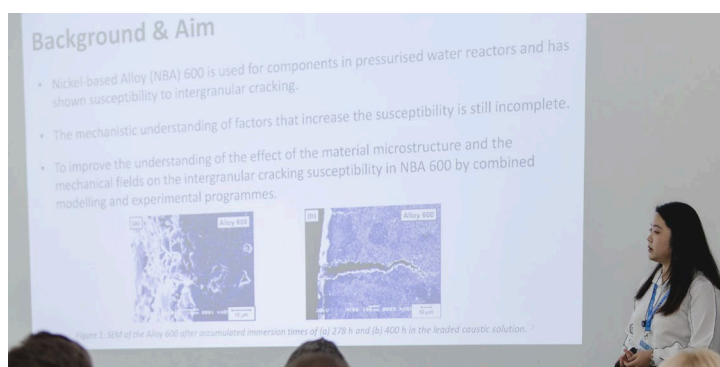
TC08: NUMERICAL METHODS

2025: TC8 will have a meeting in München. I attach the [flyer](#). My colleague Steffen Gerke (steffen.gerke@unibw.de) has the docx (or LaTeX) file

Jacques Besson

TC10: ENVIRONMENTALLY ASSISTED CRACKING

The Thematic Symposia **TC10 “Environmentally Assisted Cracking”** was organized by the TC10 on 26 August 2024 within the framework of **24th European Conference on Fracture Zagreb, Croatia August 26–30, 2024** ([LINK](#)). Thematic symposium was organized by **Prof. Jesus Toribio** (Spain), **Prof. Olha Zvirko** (Ukraine) and **Prof. Nikolaos Alexopoulos** (Greece). The sessions were chaired by **Prof. Olha Zvirko** (Ukraine) and **Prof. Nikolaos Alexopoulos** (Greece). 16 contributions were submitted to the symposium. Thematic symposium TC10 “Environmentally Assisted Cracking” had two sessions.



Presentation by Puyu Shi (University of Manchester, United Kingdom) at the thematic symposium TC10.

In 2025 the following events are planned for TC10:

1. Organization of a conference session in **8th International Conference of Engineering Against Failure (ICEAF), Kalamata, Greece June 22-25, 2025**. The special session is entitled “Metals surface degradation and protection: modelling, characterization and digitalization” by Prof. Zheludkevich (Germany), Dr. Natalia Konchakova (Germany), and Prof. Nikolaos Alexopoulos (Greece).
2. Organization of the Inaugural International Colloquium on the “**Role of Applied and Experimental Mechanics and Advanced Materials in Empowering Future Progress**” hosted by University of the Aegean **Chios Island, Greece July 24-26, 2025**. A TC10 meeting is planned, and the special session “Materials Degradation and Protection” is scheduled.
3. Organization a Thematic Symposium on “Environmentally Assisted Cracking and Hydrogen Embrittlement” and TC10 meeting – at the International Conference “**In-service Damage of Materials: Diagnostics and Prediction**”, **October 15-17, 2025**.

*Nikolaos Alexopoulos
Olha Zvirko*

TC13: EDUCATION AND TRAINING

The TC13: Education and Training will organize in collaboration with COST Action CA23109 **Fatigue Benchmark Repository (FABER)** the Summer/Training School *Advances in fatigue of materials analysis* between 2 to 5 July 2025 in Timisoara, Romania at University Politehnica Timisoara.

Liviu Marsavina

TC14: INTEGRITY OF BIOMEDICAL AND BIOLOGICAL MATERIALS

1. Technical Committee 14 "Integrity of Biomedical and Biological Materials" organised a Special Session within the framework of the **8th International Conference on Material Modelling ICMM8** in **London, UK on 15-17 July 2024**. Some 120 participants from 20 countries participated in this event. This biennial conference is the eighth in the ICMM series that started in Dortmund 2009 (Germany) followed by conferences in Paris (France), Warsaw (Poland), Berkeley (USA), Rome (Italy), Lund (Sweden) and Cape Town (South Africa).

Presentations in the Special Session covered the following topics:

- modelling of growth and remodelling in tissue-engineered cardiovascular implants;
- damage-induced growth and remodelling in soft biological tissues;
- modelling mechan adaptation of trabecular bone;
- hyperelastic and viscoelastic behaviour of soft tissue;
- bioabsorbable Mg alloys for biomedical applications;
- impact of full valve deployment on patient-specific, asymmetrical, calcified aortic root;
- effects of exercise stimulation on mineral density and mechanical properties at lumbar spine;
- mechanical properties of skin;
- digital prosthetic socket design;
- mechanical characteristics of different ankle arthrodesis.

2. Special Issue *Medical Devices: Materials, Mechanics and Manufacturing* was published in *Medical Engineering & Physics* (Elsevier) – see [here](#). Guest Editors of this Special Issue are Prof. Vadim Silberschmidt (ESIS TC14 Chair) and Prof. Sotiris Korossis (both – Loughborough

University, UK). It contains a selection of papers presented at the 2nd International Conference on Medical Devices: Materials, Mechanics and Manufacturing ICMD3M 2023 organised by ESIS TC14 in Corfu, Greece in June 2023.

The published papers present the latest developments in various areas of integrity of biomedical devices, including the following:

- haemodynamics of abdominal aorta stent graft;
- effect of haemolysis on thrombosis in blood-contacting medical devices;
- computational fluid dynamics analysis for 3D printed gradient structure in interfacial tissue engineering;
- mechanical response of heart's left ventricle;
- parametric analysis of femoro-jugular venovenous extra corporeal membrane oxygenation system;
- automatic fingertip-blood-sampling system;
- crack propagation in scaffolds;
- 3D printed anthropomorphic head phantom;
- osseo integrated 3D printed implant for treatment of thumb amputees;
- pressure distribution and mechanical performance of microarchitected 3D-printed prosthesis socket;
- below-knee running specific prostheses;
- in silico study of ankle-joint misalignments in ankle-foot orthoses;
- digital design and fabrication of multi-material hand orthoses;
- bending behaviour of 3D printed polymeric bone plates for biomedical applications.

Vadim V. Silberschmidt

TC15: STRUCTURAL INTEGRITY OF ADDITIVELY MANUFACTURED COMPONENTS

In 2023 in collaboration with TC18 ESIAM23 was organized in Porto from 4th to 6th of September. More than 100 participants have joined the events presenting their contributions to the conference in Porto. The social activities of the event were also very successful, giving the possibility to the participants to visit the beauties of Porto. We want to thank immensely the local organizers of the event Prof. Abilio De Jesus and Prof. Luis Reis.

A special symposium dedicated to TC 15 has been organized at ECF24 in Zagreb in August 2024 with more than 30 participants.

Another symposium of TC15 will be organized together with TC18 at the next **medfract3-IGF28** conference in September 2025.

More information about the event can be found here: [LINK](#)

ESIAM 2026 will be organized in February 2026 in Vicenza Italy. More information will be soon available.

Filippo Berto

TC16: FINITE FRACTURE MECHANICS

1) Minisymposium: **Finite fracture mechanics: Models and applications (FFM)** is organized by Alberto Sapora (Politecnico di Torino), Israel García and Vladislav Mantic (Universidad de Sevilla) at CFRAC 2025 ([LINK](#)) in Porto, Portugal, June 4 - 6, 2025. The main objective of this minisymposium is to present recent developments in FFM, but also in related approaches, focusing on their computational implementations and applications to relevant fracture problems in engineering. The main topics of the minisymposium include model developments and theoretical analysis, numerical implementations and benchmark problems, and comparison of predictions with experiments.

2) Advanced School on **Crack Initiation and Failure in Complex Structures: Finite Fracture Mechanics and Related Fracture Models** in International Centre for Mechanical Science (CISM) at UDINE from June 9 to 13, 2025 ([LINK](#) and [Flyer](#)).

Coordinators: Aurélien Doitrand (INSA Lyon), Mantic Vladislav (Universidad de Sevilla). Invited Lecturers: Pedro Camanho (Universidade do Porto), Pietro Cornetti (Politecnico di Torino), Philipp Weissgraeber (University of Rostock), Zohar Yosibash (Tel-Aviv University). This course offers an in-depth exploration of the novel Finite Fracture Mechanics (FFM) technique for modeling crack and failure initiation, with practical applications to real-world problems. It is designed for post-graduate students, expert researchers, and engineers who wish to understand, apply, or develop this approach. The course is offered in a hybrid format, allowing participants the flexibility to attend either in person or remotely via the Microsoft Teams platform.

Vladislav Mantic Lescisin

TC20: STRUCTURAL INTEGRITY AND PRESERVATION/RESTORATION OF HISTORICAL BUILDINGS

Call for presentation and papers to the TC20 Thematic Symposium on **Cultural Heritage Preservation** at the next ECF25 ([Flyer](#)).

Call for abstracts | ECF 2025

The 25th European Conference on Fracture (ECF25) organized under the aegis of the European Structural Integrity Society (ESIS) will gather professors, researchers, students and other professionals working towards advancing knowledge in material performance, structural integrity and durability.

The TC 20 - Structural Integrity and Preservation /Restoration of historical Buildings and Infrastructures - kindly invite you to submit an abstract for presentation at ECF25, in the Thematic Symposium on **Cultural Heritage Preservation** that will be in the spotlight at ECF25 given the outstanding historic location in Athens.

The Thematic symposium will comprise two special sessions entitled:

- From condition to “smart” monitoring: leveraging machine learning, numerical simulation, and predictive algorithms for historic structures management
- Integrated Approaches to Multi-Hazard Adaptive Conservation of Historic Structures: from Micro-Scale analysis to Macro-Level interventions

Abstracts shall not exceed 250-words and it must be written in English. Abstracts must be submitted electronically using the event's online submission system soon available at the ECF25 portal.

Abstract submission deadline: 31st March 2026

ECF25 - 25th European Conference on Fracture

Location: Athens, Greece

Dates: 6-11 September 2026

For more detailed info, such as key dates, submission instructions, registration fees, or simply to express your interest to the participation to the Thematic Symposium write at:

TC-20 Thematic Symposium Contact e-mails: chiara.bertolin@ntnu.no, stakkour@central.ntnua.gr, asedmak@mas.bg.ac.rs, filippo.berto@uniroma1.it

We look forward to seeing you in Athens in September 2026!



Chiara Bertolin

TC21: HYDROGEN EMBRITTLEMENT AND TRANSPORT

- Prof. Hong Luo is elected as a new co-chair of the ESIS Technical Committee TC21 Hydrogen Embrittlement and Transport ([LINK](#)).

Prof. Hong Luo from University of Science and Technology Beijing (USTB), National Materials Corrosion and Protection Data Center, Institute for Advanced Materials and Technology, China ([LINK](#)) major research Interests are:

- Hydrogen embrittlement and environmental corrosion mechanisms of high entropy and other metals.
- Design and development of new advanced materials with high resistance to hydrogen embrittlement (high entropy alloys, advanced nickel-based alloys, etc.).
- Material corrosion mechanisms in key components of Proton Exchange Membrane Water Electrolyzer (PEMWE) and Proton Exchange Membrane Fuel Cells (PEMFC).
- Advanced stainless steel and corrosion-resistant materials for design and service safety.
- High-performance protective coating for metal surfaces.

Prof. Hong Luo is listed on Stanford's career list and list for 2022, 2023 and 2024 which includes 2 % of the most influential scientists in the world. Prof. Luo has led and participated in 20 projects, including the National Key R&D Program and the National Natural Science Foundation of China. He has published over 150 SCI papers in journals such as Nat. Commun., Mater. Today, Corros. Sci., etc. According to Scopus, he has more than 5600 citations (h-index: 41). He has received numerous awards and honors, including the Alexander von Humboldt research fellowship, the Max-Planck-Institute research fellowship, the Outstanding Young Academic award from the Chinese Society for

Corrosion and Protection, and the National Young Talent award. He serves as an editorial board member/youth editorial board member for more than 10 SCI journals. He is the executive director of the Hydrogen Energy Division of the IEEE PES Energy Storage Technical Committee and the deputy director of the Key Laboratory of Corrosion and Protection of the Ministry of Education at the University of Science and Technology Beijing. Additionally, he holds the position of the director of the Data Department at the National Materials Corrosion and Protection Scientific Data Center.



A new co-chair of the of the ESIS Technical Committee TC21, Prof. Hong Luo.

- ESIS TC21 chair Milos B. Djukic was elected as a Fellow of the European Structural Integrity Society (ESIS) during the 24th European Conference on Fracture - ECF24 ([LINK](#)). Elected ESIS Fellows (fesis) have distinguished themselves through contributions to the European Structural Integrity Society and the art, science, teaching, or practice of fracture mechanics.



Fellow of the ESIS award ceremony during the 24th European Conference on Fracture - ECF24.

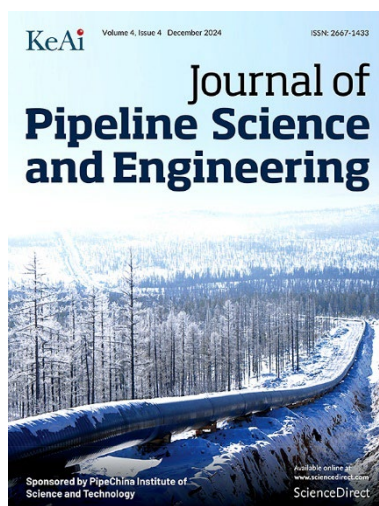
- ESIS TC21 chairs Milos B. Djukic, Tom Depover, and Motomichi Koyama, together with Frank Cheng, Livia Cupertino Malheiros, Masoud Moshtaghi, and Birhan Sefer organized the TC21 Thematic/Special Symposium: “Hydrogen embrittlement in metallic materials: pipeline transport, hydrogen storage, and other applications” ([LINK](#)) during the 24th European Conference on Fracture - ECF24 ([LINK](#)), held in Zagreb, Croatia, August 26 - 30, 2024. More than 90 papers are presented. You can check the final program here: [LINK](#). 13 Invited speakers-esteemed hydrogen embrittlement researchers presented their work during TC21 Thematic/Special Symposium:
 1. Prof. Gilbert Hénaff, Institut Pprime, Université de Poitiers, ISAE-ENSMA, France
 2. Prof. Akinobu Shibata, National Institute for Materials Science (NIMS), Japan
 3. Prof. Hiroyuki Toda, Kyushu University, Japan

4. Prof. Xavier Feaugas, Université de La Rochelle, France
5. Prof. Zhiliang Zhang, Norwegian University of Science and Technology - NTNU, Norway
6. Prof. Yuxing Li, China University of Petroleum (East), China
7. Dr. Anqing Fu, CNPC Tubular Goods Research Institute, China,
8. Prof. Hong Luo, University of Science and Technology Beijing, China
9. Prof. Hisao Matsunaga, Kyushu University, Japan
10. Prof. Yann Charles, LSPM-CNRS, Université Sorbonne Paris Nord, France
11. Prof. Frank Cheng, University of Calgary, Canada
12. Dr. Alfredo Zafra, University of Oxford, UK
13. Prof. Masoud Moshtaghi, LUT University, Finland



Chairs of the TC21 Symposium. From left to right: Prof. Emilio Martínez Pañeda, Prof. Milos B. Djukic, Prof. Frank Cheng, Prof. Tom Depover, Dr. Birhan Sefer, Prof. Masoud Moshtaghi.

- A selection of papers presented at the ECF24 TC21 Thematic Symposium “Hydrogen embrittlement in metallic materials: pipeline transport, hydrogen storage, and other applications” will be invited for publication papers in a Special Issue (SI) of the Journal of Pipeline Science and Engineering, impact factor 2023: 4.8 ([LINK](#)), published by Elsevier. The SI Guest Editors are:
 - Prof. Milos B. Djukic (ESIS TC21 chair), University of Belgrade, Faculty of Mechanical Engineering, Serbia,
 - Prof. Frank Cheng, University of Calgary, Schulich School of Engineering, Canada,
 - Tom Depover, Associate Professor (ESIS TC21 chair), Ghent University, Belgium,
 - Motomichi Koyama, Associate Professor, Tohoku University, Japan (ESIS TC21 chair).



- ESIS TC21 chair Milos B. Djukic, the chair of the TC21 Thematic/Special Symposium: “Hydrogen embrittlement in metallic materials: pipeline transport, hydrogen storage, and other applications” during the 24th European Conference on Fracture - ECF24, together with other chairs Tom Depover, and Frank Cheng, and co-chairs Motomichi Koyama, Livia Cupertino Malheiros, Masoud Moshtaghi, and Birhan Sefer, was elected as Gold Award Symposium Organizers for the outstanding number of contribution.



- ESIS TC21 chairs Milos B. Djukic and Tom Depover, together with May Martin and Hisao Matsunaga, completed the special issue (SI) of Engineering Failure Analysis (EFA) journal entitled “Understanding Environmentally Hydrogen Assisted Cracking of Metals: Key Towards a Sustainable Future” ([LINK](#)). The SI Editorial: “Understanding environmentally hydrogen assisted cracking of metals: Key towards a sustainable future” is also published ([LINK](#)). This special issue contains 35 selected papers presented at the 5th International Conference on Structural Integrity, ISCI 2023 ([LINK](#)), held in Funchal, Madeira, Portugal, August 29–31, 2023 within the TC21 Thematic/Special Symposium: “Hydrogen Embrittlement of metals: Problems and solutions” with a round table and panel discussion ([LINK](#)), organized by Milos B. Djukic, Frank Cheng, Motomichi Koyama, Tom Depover, Antonio Alvaro and Emilio Martínez Pañeda). In addition to selected papers presented during ISCI 2023, several additional invited papers by hydrogen embrittlement experts are also included in this special issue. We hope this collection of 35 articles serves as a benchmark for the state of the art, representing a broad range of topics related to hydrogen embrittlement. Also, this SI can spark new research ideas by enabling the community to identify commonalities or research gaps in our current understanding and thereby accelerate progress toward technological solutions to the hydrogen embrittlement problem.



- ESIS TC21 chair Emilio Martínez Pañeda organized Oxford-EPRI Workshop in Hydrogen Embrittlement, June 23-26, 2024, Oxford, UK ([LINK](#)), supported by ESIS TC21 Hydrogen embrittlement and transport. The workshop hosted 40 invited speakers, which gave extended talks. All ESIS TC21 chairs, including Milos B Djukic, Antonio Alvaro, Tom Depover, Emilio Martínez Pañeda, and Motomichi Koyama, were invited speakers. It was a real pleasure and honor to see friends and colleagues from the hydrogen embrittlement community and exchange thoughts about recent breakthroughs in understanding complex hydrogen embrittlement phenomena in metallic materials. The workshop was a major success.



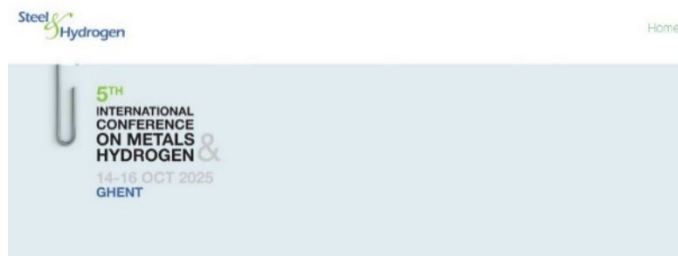
*Participant of the Oxford-EPRI Workshop in Hydrogen Embrittlement, Oxford, UK.
From left to right: Tom Depover, Emilio Martínez Pañeda, Milos B Djukic, Leonardo Uller,
Alfredo Zafra, Andrej Atrens, Antonio Alvaro.*

- ESIS TC21 chair Milos B. Djukic, together with Dr. Arun Devaraj, Physical and Computational Sciences Directorate, Pacific Northwest National Laboratory, USA and Wendy Gu, Assistant Professor, Stanford University, USA, are guest editors of the ongoing special issue (SI) - Collection of npj Materials Degradation journal entitled “Hydrogen Embrittlement” ([LINK](#)). The manuscript submission deadline is extended until 07 February 2025.



- The ESIS TC21 Technical Committee Meeting was held during the Oxford-EPRI Workshop in Hydrogen Embrittlement, June 23-26, 2024, Oxford, UK ([LINK](#)).
- The ESIS TC21 Technical Committee Meeting was held during the 24th European Conference on Fracture - ECF24, August 26-30, 2024, Zagreb, Croatia. ([LINK](#)).
- ESIS TC21 chair Tom Depover is organizing the International Conference on Metals and Hydrogen, SteelyHydrogen Conference, 14-16 October 2025, Ghent, Belgium ([LINK](#)). This conference is supported by ESIS TC21 Hydrogen embrittlement and transport.

Given today's interest in hydrogen as an energetic vector, and the maturity of some technologies becoming reality, the SteelyHydrogen forum in 2025 will again pay specific attention to the role of hydrogen in the global energy transition. Particular focus will be on material challenges.



• ESIS TC21 chairs Milos B. Djukic, Tom Depover, and Emilio Martínez Pañeda are members of the Technical Committee of the “Hydrogen in Materials” conference ([LINK](#)) which will be held on June 4-6, 2025, at La Rochelle University, France

The conference is organized by ASTM International, ASTM Committee F07.04 on Hydrogen Embrittlement and supported by ESIS TC21 Hydrogen embrittlement and transport. The abstract submission deadline is August 31, 2024.

The Conference on Hydrogen in Materials:

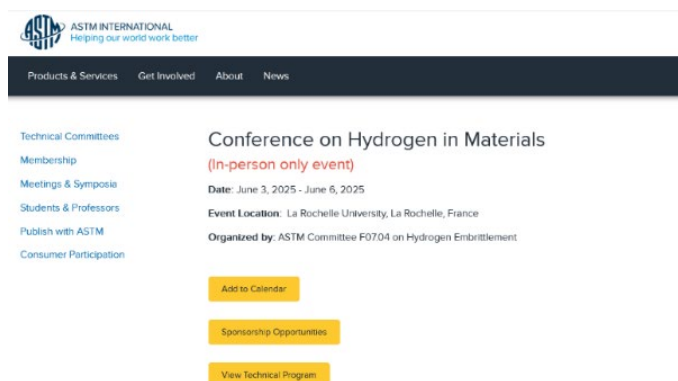
1. Co-chairs:

- Dr. Jamaa Bouhattate, La Rochelle University, France
- Salim V. Brahimi P.Eng. Ph.D., Industrial Fasteners Institute & McGill University, Canada

2. Technical Committee:

- Prof. Eason (Yi-Sheng) Chen, Nanyang Technological University Singapore (NTU)/The University of Sydney
- Prof. Hisao Matsunaga, Kyushu University, Japan
- Dr. Moli Sanchez Laura, French Corrosion Institute, France
- Dr. Evelin Barbosa de Melo, McGill University, Canada
- Prof. Tom Depover (ESIS TC21), Ghent University, Belgium
- Dr. Sriraman K. Rajagopalan, Canadian Nuclear Laboratories, Canada
- Prof. Emilio Martínez Pañeda (ESIS TC21), University of Oxford, UK
- Prof. Milos Djukic (ESIS TC21), University of Belgrade, Serbia.

This conference provides a forum for the global hydrogen embrittlement research and testing communities to meet and exchange ideas on the latest fundamental research, and advances in technology, and to consider engineering implications across all industrial sectors.



Milos B. Djukic

ESIS Publishing House (ESIS – PH)

ESIS Publishing House (ESIS - PH) allows to ESIS members to publish Monographies and Scholarly Editions (either in English or in one of the National European languages), edited volumes and special technical publications. All the volumes are published as "Open Access" volumes, being completely free of charge both for authors and for readers.

Authors retaining full and permanent ownership of their work. ESIS-PH retains a perpetual, non-exclusive right to publish the work and to include it in other aggregations and indexes to achieve broader impact and visibility. The volumes are organised in the following Series:

PSI - Procedia Structural Integrity

<https://www.esis-ph.eu/index.php/eph/catalog/series/PSI>

ECF conferences

<https://www.esis-ph.eu/index.php/eph/catalog/series/ECF>

VIDEO presentations

<https://www.esis-ph.eu/index.php/eph/catalog/series/VideoP>

CRACK PATHS conferences

<https://www.esis-ph.eu/index.php/eph/catalog/series/cp>

MULTIAXIAL fatigue and fracture conferences

<https://www.esis-ph.eu/index.php/eph/catalog/series/multiaxial>

MULTILATERAL events

<https://www.esis-ph.eu/index.php/eph/catalog/series/Multilateral>

ICF Conferences

<https://www.esis-ph.eu/index.php/eph/catalog/series/ICF>

NATIONAL GROUPS conferences

<https://www.esis-ph.eu/index.php/eph/catalog/series/NG>

PhD Thesis

<https://www.esis-ph.eu/index.php/eph/catalog/series/phdthesis>

TC publications & ESIS recommandations

<https://www.esis-ph.eu/index.php/eph/catalog/series/TCp>

BOOKS

<https://www.esis-ph.eu/index.php/eph/catalog/series/books>

ESIS Preprint Service (ESIS – PS)



ESIS Preprint Service (ESIS – PS) is an open-access repository dedicated to all aspects of Structural Integrity. It is published to disseminate knowledge about Structural Integrity worldwide and to improve the safety and performance of engineering equipment, individual components and structures. The main peculiarities are:

Dissemination speed: Research submitted to the archive is usually approved within 7 working days.

Feedback: It is possible to obtain immediate feedback on your submission, hoping that this will help the overall standard of your work.

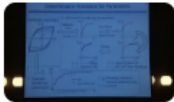
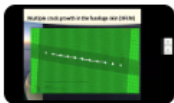

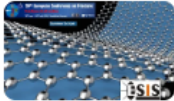

Intellectual property: the authors maintain the ownership of their works. We issue a DOI to all the approved works.

Free of charge: ESIS-PS is completely free of charge, both for readers and for authors. ESIS-PS is sponsored by the European Structural Integrity Society.

ESIS YouTube channel (ESIS – YT)

ESIS Youtube channel (ESIS – YT) publishes more than 2000 videos focused on the video recordings of the presentations held during the ESIS events in the last years.

Born in 2016, the channel now has more than 2900 subscribers, and it has had almost 306000 views so far! The top content in the last 365 days is:

	Content	Average view duration	Views
1	 Determination of Combined Hardening Parameters to Simulate Deformation Beh... 26 Jan 2019	2:09 (13.0%)	712
2	 7th lecture: Numerical simulation of fatigue crack growth 2 Feb 2021	4:37 (5.0%)	691
3	 Shear Strengthening of Reinforced Concrete T-Beams using Carbon Fiber Reinfor... 3 Nov 2022	2:00 (15.3%)	491
4	 Computational fracture mechanics 1_3 8 Jun 2016	4:18 (7.1%)	362
5	 The Beneficial Effect of Autofrettage on the Combined 3-D Stress Intensity Factor... 1 Nov 2022	1:14 (9.3%)	341

Calendar of ESIS events & TC Meetings

TC02	June 23-25, 2025	<i>Technical Meeting in MSMF11</i>	Brno, Czechia	LINK
TC04	September 19-23, 2027	<i>10th ESIS TC4 Conference</i>	Les Diablerets, Switzerland	-
ESIS	November 25-28, 2025	<i>1st Biennial ESIS-CSIC Conference on Structural Integrity</i>	Belgrade, Serbia	LINK

Calendar of Conferences & Workshops

June 23-25, 2025	<i>11th International Conference on Materials Structure and Micromechanics of Fracture (MSMF11)</i>	Brno, Czechia	LINK
July 7-11, 2025	<i>12th European Solid Mechanics Conference (LINK). Minisymposium “Modeling fatigue of materials and structures”</i>	Lyon, France	LINK
September 15-18, 2025	<i>IGF28 - MedFract3: 28th International Conference on Fracture and Structural Integrity - 3rd Mediterranean Conference on Fracture and Structural Integrity</i>	Catania, Italy & web	LINK
May 18-20, 2026	<i>18th International Engineering Structural Integrity Assessment Conference (ESIA18)</i>	Strathclyde, UK	LINK

ESIS Procedures and Documents

Two kinds of documents are produced by ESIS Technical Committees with the following designatory system: ESIS P2-92 or ESIS P4-92D, where:

1. P means "Procedure", and 2 and 4 are the current numbers, while 92 is the year of issue.
2. D following the year (eg: 92D) means "draft", ie: not yet approved, while
3. D prior to the year (eg: D1-92) means "Document" other than test methods.

P1-92

ESIS RECOMMENDATIONS FOR DETERMINING THE FRACTURE RESISTANCE OF DUCTILE MATERIALS.

Responsible body: TC1 Subcommittee on Fracture Mechanics Testing Standards.

P2-92

ESIS PROCEDURE FOR DETERMINING THE FRACTURE BEHAVIOUR OF MATERIALS.

Responsible body: TC1 Subcommittee on Fracture Mechanics Testing Standards.

P4-92D

ESIS RECOMMENDATIONS FOR STRESS CORROSION TESTING USING PRE-CRACKED SPECIMENS.

Responsible body: TC10 Committee on Environmental-Assisted Cracking.

P5-00/VAMAS

PROCEDURE FOR DETERMINING THE OF FRACTURE TOUGHNESS OF CERAMICS USING THE SEVNB METHOD.

Responsible body: TC6 Committee on Ceramics.

P6-98

ESIS PROCEDURE TO MEASURE AND CALCULATE MATERIAL PARAMETERS FOR THE LOCAL APPROACH TO FRACTURE USING NOTCHED TENSILE SPECIMENS.

Responsible body: TC8 Committee on Numerical Methods.

P7-00

ESIS PROCEDURE FOR DYNAMIC TENSILE TESTS

Responsible body: TC5 Subcommittee on Dynamic Testing at Intermediate Strain rates.

P8-99D

ESIS DRAFT CODE OF PRACTICE FOR THE DETERMINATION AND INTERPRETATION OF CYCLIC STRESS-STRAIN DATA.

Responsible body: TC11 Committee on High Temperature Mechanical Testing.

P10-02

A CODE OF PRACTICE FOR CONDUCTING NOTCHED BAR CREEP RUPTURE TESTS AND INTERPRETING THE DATA.

Responsible body: TC11 High Temperature Mechanical Testing Committee.

P11-02

TECHNICAL RECOMMANDATIONS FOR THE EXTREME VALUE ANALYSIS OF DATA ON LARGE NONMETALLIC INCLUSIONS

Responsible body: TC20 Committee on Inclusions.

D1-92

FRACTURE CONTROL GUIDELINES FOR STRESS CORROSION CRACKING OF HIGH STRENGTH ALLOYS.

Responsible body: TC10 Committee on Environmental Assisted Cracking.

D2-99

FRACTURE TOUGHNESS OF CERAMICS USING THE SEVNB METHOD; ROUND ROBIN, TEST PROGRAMME. The ESIS TC6 and VAMAS TWA3 developed a test method and conducted a round robin for its validation. D2-99 presents a detailed documentation of this activity. The final form of the test method has appeared as P5-00.

Responsible body: TC6 Committee on Ceramics.

How to become an ESIS member

ESIS has individual, organisational and corporate memberships. Members may register as individual members (Individual registration) or as part of a group membership from a named industrial, commercial, research, or educational organisation by payment of the annual fee (Corporate or National Committees registration). [LINK](#)

If you become an ESIS member...

- You will have full access to the ESIS publications archive.
- You will receive the credentials for the ESIS G-Suite service (the customized improved Google Suite for ESIS... e.g. you will obtain a 30 Gb GDrive, instead of the standard 15 Gb).
- You will have a discount for the participation to the ECF events (Conferences and Summer schools).
- Monthly, you will receive the “ESIS News”, with all the updates concerning events organized by ESIS, by the ESIS Technical Committees and by the National Committees.
- Every 6 months, you will receive the ESIS Newsletter, with the reports concerning the Technical Committees and National Committees activities and all the information concerning ESIS life.

In addition, thanks to ESIS member contribution, it is possible for ESIS:

- To organize Technical Committees focused on many different topics.
- To publish a [blog on iMechanica](#) that promotes and intensifies relevant scientific discussions on recent publications in Engineering Fracture Mechanics.
- To publish a [YouTube channel](#) with the videorecordings of some events recently organized by ESIS (ECF presentations and Summers Schools).
- To publish [Procedia Structural Integrity \(Elsevier\)](#), an open access product focused entirely on publishing full sets of conference proceedings organized by ESIS, by ESIS Technical Committees and by National Groups that are affiliated with ESIS.
- To publish an up to date website (<https://www.esis.site/>) and to “be alive” in the web, with a [Facebook page](#), a [Telegram channel](#), a [YouTube channel](#), a [Twitter account](#), a [Whatsapp channel](#) and a [Linkedin account](#).
- To publish special issues in five affiliated Elsevier journals (Engineering Failure Analysis, Engineering Fracture mechanics, Forces in Mechanics, International Journal of Fatigue, Theoretical and Applied Fracture Mechanics).
- To publish volumes in the [ESIS – Publishing House \(ESIS PH\)](#).
- To publish preprints in the [ESIS – Preprint Service \(ESIS -PS\)](#) platform.