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Newsletter and Publications
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ESIS Newsletter #48, October, 2011

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EDITORIAL BY THE ESIS PRESIDENT

I am pleased to report to you on the progress that ESIS is making. In mid-September, the Executive Committee (ExCo) met in Berlin, hosted by Dietmar Klingbeil, the National Representative of Germany. In addition to a fine meeting, we enjoyed



excellent German food and beer. The attendees included Jaroslav Pokluda and Stefano Beretta, the two vice-presidents, Guiseppe Ferro, the treasurer, James Marrow, the new secretary, Wolfgang Brocks, publications manager, Dietmar Klingbeil, liaison to other organizations, Robert Goldstein, chairman of ECF19 in Kazan, Zhiliang Zhang, chairman of ECF20 in Trondheim, and Antonio Martin-Meizoso, who attended as a guest.

Following my opening remarks welcoming the attendees, Robert Goldstein reported on progress regarding plans for ECF19 in Kazan, Russia. The main topics include: fracture mechanics-current state; fracture processes under the action of physical fields and chemically active media; evaluation of residual lifetime, risk and safety analysis; fracture diagnostics and monitoring; fracture mechanics and metrology of strength and fracture resistance characteristics of structural materials accounting for their multiscale structure (from nano- to macroscale); fracture mechanics application in different fields of industry; case histories; fracture mechanics in design and technology; computational fracture mechanics; fracture mechanics of geomaterials and natural objects. A preliminary list of invited speakers includes Ellias Aifantis, Wolfgang Brocks, Alberto Carpinteri, Emmanuel Gdoutos, Bhushan Karihaloo, Georgy Karzov, Otmar Kolednik, Meinhard Kuna, Toshihiko Kuwabara, Antonio Martin-Meizoso, Boris Margolin, Steve McDaniels, Yukitaka Murakami, H.M. Nykyforchyn, Yury Petrov, Reinhard Pippan, Jaroslav Pokluda, Krishnaswamy Ravi-Chandar, Robert Ritchie, Siegfried Schmauder, Dov Sherman, Andrey Shanyavskiy, Yu Shouwen and Jesus Toribio. Quite a number of special sessions

are planned, as well as mini-symposia. There are direct international flights to Kazan, as well as 14 daily flights from Moscow. The conference will be held at the Korston Hotel and Mall. It should be noted that Russia requires entry visas from many countries. For EU countries, the procedure takes from 10 days to two weeks. For other countries, it may take up to five weeks. After registering for the conference, you will receive a letter of invitation from the conference chairman. So please take care of these details sufficiently early. We look forward to welcoming everyone at Kazan.

Plans for ECF20 in Trondheim, Norway are also in progress. At the next Council meeting in Kazan, we will decide on the venue for ECF21. Bids for that meeting are welcomed.

Last August, we signed a contract with Elsevier continuing our close relationship with them until the end of 2013. We hope that at that time the contract will be extended. The journals which are affiliated with ESIS include: Engineering Fracture Mechanics (EFM), International Journal of Fatigue (IJFat) and Engineering Failure Analysis (EFA). I would like to encourage you to publish in these journals. In 2010, the following special issues were published: three from ECF17, Microstructurally Based Fracture Mechanics in EFM (77 (2) p. 183), EFA (17 (3) p. 595) and IJFat (32 (6) p. 871; and International Conference on Crack Paths 2009, in EFM (77 (11) p. 1617). In 2011, there are Meso-Mechanical Modelling of Fatigue and Fracture in EFM (78 (3) p. 451), Damage Tolerance of Railway Axles in EFM (78 (5) 713) and ICMFF Multiaxial Fracture in EFM (78 (8) p.1515); ICMFF Multiaxial Fatigue Models in IJFat (33 (8), p. 929). Please peruse them if they are in your area of interest.

I am also pleased to mention our blog in which Wolfgang Brocks reviews different papers from Engineering Fracture Mechanics. This information may be found through our web site at www.structuralintegrity.eu or from the direct link www.imechanica.org/blog/23810 Wolfgang has reviewed three papers and we have had over 3,600 people look at the reviews. I would like to encourage you to read these interesting pieces and respond.

In 2010, ESIS had over 500 members. You can now register to be a member of ESIS on-line. There are three possibilities: individual, corporate and through your national organization. Please renew your ESIS membership soon for 2011.

Another important aspect of ESIS is our Technical Committees. These include: TC-1: Elastic-Plastic Fracture Mechanics; TC-2: Micromechanisms; TC-3: Fatigue of Engineering Materials and Structures with a Sub-Committee on Multiaxial Fatigue; TC-4: Polymers and Polymer Composites; TC 5: Fracture Dynamics;

TC 6: Ceramics; TC 8: Numerical Methods; TC 9: Concrete; TC 10: Environmental Assisted Cracking; TC 11: High Temperature Mechanical Testing; TC 12: Probabilistic Interpretation of Mechanical Property Data; TC 24: Integrity of Railway Structures. There are many interesting activities and meetings taking place within the TCs. Many of our special technical publications are a result of TC activities. I would like to encourage all of you to look at our web site and join a TC which is close to your area of expertise. If you are interested in starting a new TC, please contact me and we will try to arrange it with the necessary approval.

As our liaison representative, Dietmar Klingbeil is organizing various activities together with ASTM. One of them is our presence at the Workshop on Verification and Validation of Solid Mechanics and Life Prediction Software, May 9, 2012, Phoenix, AZ. Please contact Dietmar for details.

Antonio Martin-Meizoso and Liviu Marsavina have agreed to work with us to raise money for ESIS. One of the ideas is for the TCs to obtain support from COST. Antonio made a presentation at the ExCo meeting in Berlin. He and Liviu will extend these ideas and present them to interested people at a special meeting in Kazan.

Finally, I want to encourage you all to come to Kazan to present your research results at ECF19. Kazan is a vibrant city that is growing with a tremendous investment by the Russian government, and is a leading science center of the Russian Academy of Science.

Leslie Banks-Sills

WELCOME !

Dear colleagues,

It is an ESIS tradition to invite the awardees of the previous year to submit technical papers for the Newsletter. However, Robert Goldstein, who has been awarded the honorary ESIS membership in 2010, is so busy with organising ECF 19 in Kazan that I did not dare to ask him. Hence you will find no invited technical papers in the present Newsletter.



Instead, I invited the national representatives of the Czech Republic and Poland to report on the work of their national committees. You may regard this as a continuation of Dominique François' contribution on the "ESIS roots". I would appreciate if further national representatives could submit their reports in the future to foster the information on European

activities in the field of fracture mechanics and structural integrity among the countries.

I would also like to pass on the idea of Robert Goldstein to publish contributions on the history of fracture mechanics, structural integrity and materials science. This will not only restore our own historic awareness but might help young scientists to learn about the development and the current status of their subject area. When reviewing manuscripts submitted to scientific journals, I have occasionally been appalled that reported new results were actually something quite old, but the authors just did not know. Science has to be aware of its history to proceed.

As our president, Leslie Banks-Sills, mentions in her editorial, the blogs on IMECHANICA discussing papers published in Engineering Fracture Mechanics have been successful as far as the number of readers is concerned. The ExCo expected reactions, however, by the authors of the addressed papers as well as comments by other scientists, which has not yet occurred. Thus my appeal is: do not just read these blogs but comment on them.

An organisation is as lively as its members. ESIS is our organisation and it lives from your contributions and discussions.

Wolfgang Brocks

Advantages of being an ESIS member

- ◆ participation in TC activities and access to TC documents;
- ◆ full on-line access to ESIS procedures;
- ◆ full on-line access to former EGF-ESIS books;
- ◆ support for ESIS activity.

how to renew?

see **page 14 and 15** or
www.structuralintegrity.eu

NATIONAL COMMITTEES

Czech National Committee to ESIS: History and State-of-the-Art

The Czech National Committee (CZNC) was formally established in 1998 at the ECF12 (Sheffield 1998). The Institute of Physics of Materials (IPM), Academy of Sciences of the Czech Republic, in Brno, was selected to be its seat. Since that time, Prof. Jaroslav Pokluda (Brno University of Technology) works as the Chairman of CZNC and the National Representative to ESIS. The Secretary is Prof. Ivo Dlouhý (IPM) as a National Representative to ESIS (non-voting) and the Treasurer is Dr. Vladislav Kozák (IPM). In 2005, the CZNC was affiliated to the Association of Mechanical Engineers (AME) in the Czech Republic (the professional institution similar to ASME in the USA or FESI in the UK) as an independently registered non-profit scientific institution in the frame of AME. Since that time, the CZNC always has more than 20 members.

Interconnection between AME and CZNC revealed to be effective from the very beginning. It enabled us to smoothly establish and institutionalize the CZNC, thus keeping 2/3 of the ESIS membership in the Czech Republic. CZNC can properly take part in decisions of the ESIS Council and participate in the most important activities held under the auspices of ESIS. Operation of the CZNC runs according to an independent Statute necessary for the

ESIS Website

www.structuralintegrity.eu

- **become a member of ESIS and take advantage of all the "Members Only" resources on this Web site**
- **register automatically as a Member and pay the fee by PayPal system**
-
- **obtain your username and password for accessing the private area for downloading EGF-ESIS books and Procedures**
-
- **exchange new ideas, advancements and documents with the other ESIS Members**

appropriate intersection with those of the AME and ESIS.

Basic information about the CZNC activities is continuously updated at the CZNC website <http://esis.ipm.cz/>. Members of the CZNC participate in activities of ESIS Technical Committees (TCs), organize conferences and workshops under the auspices of ESIS, prepare methodical documents, recommendations and jointly apply for research projects. In this way, CZNC can also gain some financial resources for supporting Czech young scientists in their research activities. For example, more than 40 PhD students were financially supported by the Czech Science Foundation in the frame of the project Multiscale Design of Advanced Materials that was initiated by the members of CZNC. Thanks to the support, special activities can be arranged for individual PhD students starting from consultations with acknowledged scientists to regular visits of students to top laboratories and conferences. This project has successfully run from 2004 and will be finished in 2013. CZNC also rewards young Czech scientists for excellent presentations at international conferences under the auspices of ESIS, e.g., at the conference series Materials Structure and Micromechanics of Fracture (MSMF-4 and 5) organized in Brno, 2004 and 2007.

Members of the CZNC significantly participate in the work of ESIS TCs: TC1 - J. Pokluda, I. Dlouhý, V. Kozák; TC 2 - J. Pokluda (Chairman), I. Dlouhý; TC5 - I. Dlouhý; TC6 - Z. Chlup; TC8 - V. Kozák, TC12 - I. Dlouhý. Their work has resulted in special issues of Elsevier journals and proposals of technical standards. Special issues of Engineering Fracture Mechanics were produced by J. Pokluda and R. Pippan in 2008 and J. Pokluda in 2010. Special issues of Engineering Failure Analysis, edited by I. Dlouhý and P. Šandera, and International Journal of Fatigue, edited by P. Lukáš, also appeared in 2010. These issues contained selected papers presented at TC2 workshops on Micromechanisms of Fracture that were held in Alexandroupolis (Greece), Brno (Czech Republic) and Leoben (Austria). The 21st version of the TC5 proposal "Instrumented impact-bending test" was accepted as an ISO standard in 2008.

In the years 2006-2008, members of CZNC formed a core of the local organizing committee of the 17th European Conference of Fracture (ECF17) that was hosted in Brno, Czech Republic, September 2 - 5, 2008. Co-chairmen of this conference were members of CZNC, J. Pokluda and P. Lukáš. About 450 participants from 44 countries all over the world discussed problems related to fracture mechanics particularly from a multiscale point of view. According to reactions of participants and many renowned world experts, ECF17 turned out to be

one of the most successful conferences in the ESIS history.

It is to be expected that the hard work of CZNC members to ensure proper development of ESIS will continue also in the future. This particularly stands for both authors of this article. Indeed, Jaroslav Pokluda was elected as a Vice President of ESIS responsible for improvement of statutes and registration. As a TC2 Chairman, he currently prepares workshops in Berlin, November 2011, and in Oxford, April 2012. Ivo Dlouhý was appointed an Internal Auditor of ESIS financial statements during the period of 2002 - 2010.

Profs. Jaroslav Pokluda, Ivo Dlouhý

Polish Group on Fracture

The Polish Group on Fracture (PGF) – the national branch of the European Structural Integrity Society – was founded in 1987. It was affiliated at the Committee of Machine Design of the Polish Academy of Sciences. The main aim of this group was to integrate the research activities of Polish researchers and engineers working in the field of fracture and fatigue. Before 1987 the fatigue community had been already integrated around the national leader in this field Prof. Stanislaw Kocanda. However, fracture activities were distributed all over the country. PGF started organizing the national conferences every second year. This year, in September, the 13th National Fracture Conference is organized in Opole. During these conferences both fracture and fatigue papers are presented. Usually, the best papers are published, after the conference, in the well known Polish scientific periodicals. Alternately with the Polish National Conference on Fracture and Fatigue, the Symposium on Fatigue and Fracture is organized (the even years). The last one, 23th, took place in 2010. The Fatigue and Fracture Symposia started before PGF was founded.

According to our Statutes each person who takes part in one of the Polish conferences becomes a member of PGF, unless he/she declines the membership. At the moment the mailing list contains more than 120 names, although not everybody among them is active in fracture or fatigue. During the best years 80 – 90 persons used to take part in both Fracture and Fatigue National conferences. Recently, the number of participants has decreased to about 50 persons.

During the National Conferences the President and National Advisory Committee (9 persons) are elected. At the moment Prof. Andrzej Neimitz is the president of PGF. The

members of the Advisory Committee create the Scientific Committee of the National conference.

Four years ago the fatigue and fracture community founded the Professor Stanislaw Kocanda Medal in order to commemorate this distinguished scientist. So far two scientists were honored with this medal. They were Prof. Jozef Szala and Andrzej Neimitz.

Members of PGF were active in organizing Fracture and Fatigue conferences at the European level:

- IUTAM Symposium on Dynamic Fracture Mechanics, 1993, Ameliówka k. Kielc (co-chairmen A.Neimitz, Kalthoff)
- 5th Int. Conf. on Biaxial/Multi-axial Fatigue and Fracture (5ICBMFF) Cracow 1997 (co-chairmen, E.Macha, Z.Mroz).
- European Conference on Fracture ECF 14 "Fracture Mechanics beyond 2002" – Kraków, 2002 (co-chairmen: A.Neimitz, D.Kocanda, K.Golos)
- XV International Colloquium on Mechanical Fatigue of Metals (XV-ICMFM), Chairman: E. Macha, Opole, Poland, 2010.

Summer Schools:

- International Summer School on Fracture in Structures, 1997, Ameliówka k. Kielc. (co-chairmen A.Neimitz, M.Chrzanowski)
- First six Summer Schools, the first one in 1995, were organized in Szklarska Poręba by Wrocław University of Technology with Prof. W. Kasprzak with cooperation with Physico-Mechanical Institute of The Ukrainian Academy of Sciences (Prof. V.V.Panasyuk) and Dresden University of Technology (Prof. S.Sähn).
- 7th Int. Summer School of Fracture Mechanics (SSFM7) 18-22.06.2001, Opole-Pokrzywna (E. Macha).
- 8th Summer School on Fracture Mechanics and Structural Integrity, Lviv, Ukraine 2004 (Prof. V.V. Panasyuk)
- 1st European Summer School of Fatigue and Fracture (ESSFF1) & 9th Polish-Ukrainian-German Summer School of Fracture Mechanics (SSFM9), 19-26.06.2005, Zakopane (E. Macha).
- 10th Polish-Ukrainian-German Summer School on Fracture Mechanics, Trzebieszowice, 2007.
- 11th Polish-Ukrainian-German Summer School on Fracture Mechanics, 23-27 June 2009, Lviv, Ukraine.
- 12th Summer School on Fracture Mechanics, Warsaw, September 2011 (Prof. J.K. Kurzydłowski)

Two members of PGF have been active in the ESIS structures. Prof A. Neimitz was the vice

president of ESIS from 2006 – 2010, Prof. E.Macha is the chairman of the Sub-Technical Committee: "Multi-axial Fatigue".

Prof. Andrzej Neimitz

UPDATES

National Committee Austria

New Chairman: Prof. Reinhard Pippan
 Erich Schmid Institute of Materials Science of the Austrian Academy of Sciences
 Jahnstraße 12
 A-8700 Leoben
reinhard.pippan@oeaw.ac.at

National Committee Spain

New Chairman: Prof. Antonio Martín-Meizoso
 CEIT (Centre of Studies and Technical Research of Gipuzkoa)
 Materials Department
 Paseo Manuel Lardizabal, 15
 20018 Donostia-San Sebastian
ameizoso@ceit.es

Denmark

New Representative: Tore Lucht
 MAN Diesel & Turbo
 Teglholmegade 41
 2450 Copenhagen SV
Tore.Lucht@man.eu

ESIS Membership 2010

Country	Total
SPAIN	115
ITALY	87
SERBIA	65
RUSSIA	53
UK	48
UKRAINE	33
POLAND	29
CZECH REPUBLIC	25
GERMANY	19
AUSTRIA	13
ISRAEL	10
SWITZERLAND	10
NORWAY	3
FRANCE	2
BRAZIL	2
CANADA	2
CROATIA	1
CYPRUS	1
FINLAND	1
MALAYSIA	1
NETHERLANDS	1
JAPAN	1
Grand Total	522

ECF 19

The 19th European Conference on Fracture will take place in Kazan, Russia, from August 26th to 31st, 2012, see <http://www.ecf19.ru/>

Deadlines

Submission of Abstracts	15 December, 2011
Notification of Acceptance	15 February, 2012
Early Registration	15 March, 2012
Submission of Full Papers	15 April, 2012

Main topics

1. Fracture mechanics current state:
 - 1.1. Models, criteria, testing, engineering methods;
 - 1.2. Multiaxial/mixed mode fracture;
 - 1.3. Dynamic fracture; damage and fracture under dynamic loading;
 - 1.4. Multicyclic loading, multi-scale material structures;
 - 1.5. Nano-structured materials;
 - 1.6. Fracture mechanics of biomaterials;
 - 1.7. Fatigue and fracture under variable amplitude loading;
 - 1.8. Damage based fracture models;
 - 1.9. In-plane and out-of-plane constraint effects
2. Fracture processes under the action of physical fields and chemically active media:
 - 2.1. Fracture processes under the action of physical fields;
 - 2.2. Fracture processes under the action of chemically active media;
 - 2.3. Fracture processes under the combined action of physical fields and chemically active media
3. Evaluation of residual lifetime, risk and safety analysis:
 - 3.1. Methods for residual lifetime evaluation and prediction;
 - 3.2. Engineering risk assessment;
 - 3.3. Risk analysis in safety problems;
 - 3.4. Structural integrity assessment
4. Fracture diagnostics and monitoring:
 - 4.1. New equipment and technologies for monitoring the technical state of potentially dangerous structures;
 - 4.2. Diagnostics of structural materials ageing;

- 4.3. Inverse problems of defects and cracks identification
5. Fracture mechanics and metrology of strength and fracture resistance characteristics of structural materials accounting for their multiscale structure (from nano- to macroscale):
 - 5.1. New methods and equipment for fracture resistance testing;
 - 5.2. Testing nano- and microscale samples;
 - 5.3. Problems of metrology in fracture testing
6. Fracture mechanics application in different fields of industry:
 - 6.1. Aircraft; marine transport, railway transport; nuclear; gas and oil industry; energetics;
 - 6.2. Micro- and nanoelectronics;
 - 6.3. Scale effects at fracture;
 - 6.4. Durability, safety and reliability of complex technical systems;
 - 6.5. Nondestructive testing and evaluation of structural components
7. Case histories:
 - 7.1. Historical examples of catastrophic fracture;
 - 7.2. Examples of recent catastrophic fracture;
 - 7.3. Methodology of catastrophic fracture analysis
8. Fracture mechanics in design and technology:
 - 8.1. Fracture mechanics in design of fracture resistant materials and components;
 - 8.2. Fracture in technology
9. Computational fracture mechanics:
 - 9.1. Methods of computational fracture mechanics and benchmark problems;
 - 9.2. Fracture mechanics in engineering codes;
 - 9.3. Numerical modeling of fracture of materials and structures;
 - 9.4. Virtual fracture analysis and testing
10. Fracture mechanics of geomaterials and natural objects:
 - 10.1. Laboratory and field measurements of fracture characteristics of geomaterials and natural objects;
 - 10.2. Models of fracture in geomechanics and geoen지니어ing;
 - 10.3. Fracture mechanics and earthquake prediction;
 - 10.4. Fracture mechanics in geotechnologies

CALL FOR NOMINATIONS FOR ESIS FELLOWS AND AWARDS

Once every two years ESIS confers the following awards:

- The Griffith Medal
- The Wöhler Medal
- Award of Merit
- Honorary Membership of ESIS
- Young Scientist Award

and the ESIS Fellowship.

Fellows shall be persons who have been members of ESIS for at least five years and who have distinguished themselves through contributions to the Society and to the art, science, teaching, or practice of fracture mechanics.

Nominations for the awards and the fellowship are to be filed with the chairpersons of the Awards and the Fellows Committee, Professor Robert Goldstein and Professor Leslie Banks-Sills, respectively, not later than six months before the Council meeting in Kazan, August 2012. These may be made by any member of ESIS, but each nomination shall carry the name of a proposer and a second. No member may propose or second a candidate from their own country. Nominations must at least be annexed by a CV of the nominee and a detailed statement of grounds.

TECHNICAL COMMITTEES

TC 3: Fatigue of Engineering Materials and Structures

(a) Professor Andrea Carpinteri (Parma), Professor Les P. Pook (London) and Professor Cetin Morris Sonsino (Darmstadt): Guest Editors of a Special Issue on "Multiaxial Fatigue Models" of the "International Journal of Fatigue", Vol.33, No.8, 929-1157, 2011 (with papers selected from those presented at the International Conference on Multiaxial Fatigue and Fracture - ICMFF9, held in Parma, Italy, 7th to 9th June, 2010).

(b) Professor Andrea Carpinteri (Parma), Professor Les P. Pook (London) and Professor Andrea Spagnoli (Parma): Guest Editors of a Special Issue on "Multiaxial Fracture" of the International Journal "Engineering Fracture Mechanics", Vol.78, No.8, 1515-1826, 2011 (with papers selected from those presented at the International Conference on Multiaxial

Fatigue and Fracture - ICMFF9, held in Parma, Italy, 7th to 9th June, 2010).

(c) Professor Ewald Macha and Professor Dariusz Rozumek (Opole): Guest Editors of a Special Issue "XV-ICMFM" of the "International Journal of Fatigue", Vol.33, 2011 (with papers selected from those presented at the XV International Colloquium on Mechanical Fatigue of Metals - XV-ICMFM, held in Opole, Poland, 13th to 15th September, 2010).

(d) Professor Ewald Macha (Chairman of the ESIS TC 3.1 Sub-Committee "Multiaxial Fatigue"): Chairman of the 13th Conference on Fracture Mechanics (XIII-CFM), to be held in Opole, Poland, 5th to 7th September, 2011.

(e) Professor Andrea Carpinteri (Parma) and Professor Les P. Pook (London): Chairmen of the 4th International Conference on Crack Paths (CP 2012), to be held in Italy, 19th to 21st September, 2012.

(f) Professor Andrea Carpinteri (Parma), Professor Francesco Iacoviello (Cassino), Professor Les P. Pook (London) and Professor Luca Susmel (Sheffield): Guest Editors of a Special Issue on "Fatigue Crack Paths" of the "International Journal of Fatigue", and Guest Editors of a Special Issue on "Crack Paths" of the International Journal "Engineering Fracture Mechanics", with papers selected from those presented at the 4th International Conference on Crack Paths - CP 2012, to be held in Gaeta, Italy, 19th to 21st September, 2012.

(g) Professor Andrea Carpinteri (Parma), Professor Masao Sakane (Ritsumeikan, Japan) and Professor Shan-Tung Tu (Shanghai, China): Chairmen of the 10th International Conference on Multiaxial Fatigue and Fracture (ICMFF10), to be held in Kyoto, Japan, 3rd to 6th June, 2013.

(h) Professor Andrea Carpinteri (Parma), Professor Masao Sakane (Ritsumeikan, Japan) and Professor Shan-Tung Tu (Shanghai, China): Guest Editors of a Special Issue on "Multiaxial Fatigue Models" of the "International Journal of Fatigue", and Guest Editors of a Special Issue on "Multiaxial Fracture" of the International Journal "Engineering Fracture Mechanics", with papers selected from those presented at the 10th International Conference on Multiaxial Fatigue and Fracture - ICMFF10, to be held in Kyoto, Japan, 3rd to 6th June, 2013.

Profs Andrea Carpinteri, Les P. Pook

TC 10: Environmentally Assisted Cracking

(a) 18th-23rd September, 2011, Warsaw University of Technology (Poland): 12th Polish-Ukrainian-German Summer School on Fracture Mechanics, in connection with EMRS 2011 Fall

Meeting, Symposium C "Mechanical properties of nanomaterials - experiments and modeling".

(b) 3rd October, 2011, Lviv Politechnic National University (Ukraine): TC 10 Meeting.

(c) 3rd-7th October, 2011, Lviv Politechnic National University (Ukraine): Second Ukrainian-Greek Symposium on Fracture Mechanics of Materials and Structures.

Prof. Hryhoriy Nykyforchyn

TC 11: High Temperature Mechanical Testing

The HTMTC is in the process of developing two seminars on the subject of Quality Assurance in Mechanical Testing Laboratories, and wish to know if such workshops would be of interest to other members of ESIS.

The topics currently under consideration are:

- Accreditation & approvals
- Quality Management Systems
- Equipment (Calibration and verification)
- Personnel (Competence & training)
- Proficiency testing & reference materials
- Uncertainty of measurement
- Conformance assessment
- What to do when it all goes wrong
- Equivalency of results

If you or your colleagues have an interest in these or related topics, please contact malcolm.loveday@npl.co.uk, indicating the following

- Are you potentially able to attend the workshop?
- Are there other topics that should be included in the workshop? (if your answer is Yes, please provide examples)
- Would you, or a colleague, from your organisation be willing to contribute in discussion, or give a short presentation on your experiences of any aspects of the Accreditation process ? (If your answer is Yes, please state the area / topic on which you would wish to speak)

Responses before 1st November would be particularly welcomed, as the HTMTC Council meets on 2nd November. However, responses after that date will still be appreciated.

Malcolm Loveday

TC 12: Probabilistic Interpretation of Mechanical Property Data

Chairman Dr Robert Moskovic

new e-mail:

robert.moskovic@magnoxsites.com

TC 24: Integrity of Railway Structures

"Predicting real world axlefailure and reliability - A pan-European ESIS TC 24 rail workshop

On 3rd-4th March 2011, a meeting of TC 24 has been hosted in London by RSSB (Rail Safety Standard Board). The workshop was based around new RSSB research work which, for the first time, allows railway engineers to understand the complex loading and environment of railway axles.

The meeting has been the opportunity to show that RSSB research provides quantified models, based on first principles, for the damage to railway axles caused by corrosion and by mechanical impacts and to compare it with other approaches.

Moreover, other technical presentations allowed to better understand the overall importance and mutual relationship among corrosion fatigue, NDT controls and fleet management and safety. The workshop has been organized into 5 sessions attended by almost 70 technical staffs and a handful of academics.

Presentations – Day 1

<i>Welcome</i>	Len Porter, Chief Executive, RSSB
<i>Axle fatigue overview</i>	Prof. Rod Smith, Imperial College, London
<i>The technical context for RSSB's work</i>	Ken Timmis, Rolling Stock Engineer, RSSB
<i>Accurate prediction of axleload spectra</i>	Mathew Beagles, DeltaRail
<i>How good are axle non-destructive testing techniques?</i>	John Rudlin, TWI
<i>Early laboratory studies of corrosion fatigue</i>	Dr Michele Carboni, Politecnico di Milano
<i>Corrosion fatigue and European axle steels</i>	Prof. Stefano Beretta, Politecnico di Milano
<i>Damage quantification on real railway axles</i>	John Davenport, TWI
<i>Technical challenges in the Axle Safety Model</i>	Andrew Watson, DeltaRail

Presentations – Day 2

<i>Railway axle failures caused by corrosion and corrosion fatigue – the German experience</i>	Dr Katrin Maedler, DeutscheBahn
<i>GB axle failures caused by corrosion fatigue</i>	Andrew Watson, DeltaRail
<i>Experience on axle defects</i>	Roy Archer, Applied Inspection
<i>Serco's approach to life cycle costs and corrosion</i>	John Benyon / Adam Beagles, Serco
<i>LURSAK: The new high performances axle protection</i>	Mr S Cantini, Lucchini RS
<i>Demonstration of the Axle Safety model</i>	Andrew Watson, DeltaRail

The complete presentations can be downloaded from the website:

<http://www.structuralintegrity.eu/tc24.html>

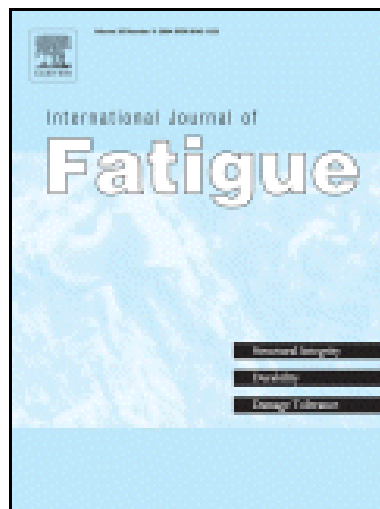
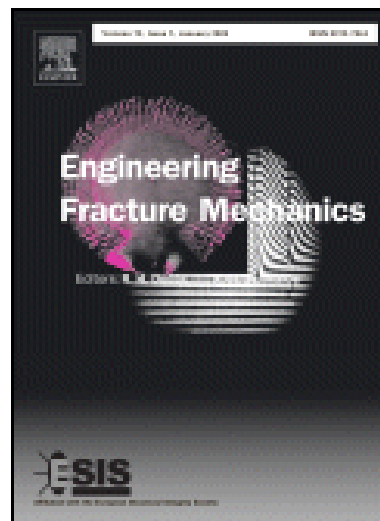
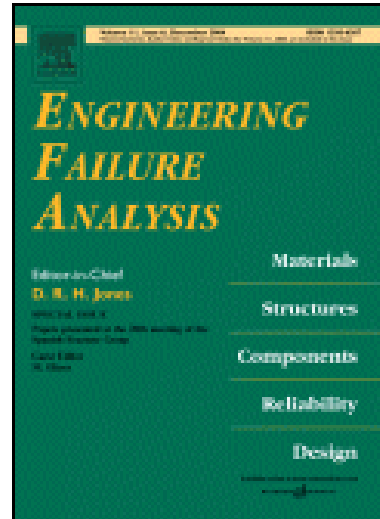
The ongoing projects on axles design and durability are:

- EURAXLES (EU project),
- WOLAXIM (EU project),
- MARAXIL (Italian-German bilateral agreement),
- EISBFW3 (German funded cooperative project).

The next TC24 meeting is expected to be hosted by PoliMi in May 2012. Further details will appear before December 2011.

Prof. Stefano Beretta

3 Elsevier journals are affiliated with ESIS



CALENDAR OF TC MEETINGS

TC 2	24 th -25 th November, 2011	7 th Committee Meeting	Federal Institute for Materials Research and Testing Berlin, Germany	<i>Dr. Bernard Fedelich</i> bernard.fedelich@bam.de
TC 2	2 nd -3 rd April, 2012	8 th Committee Meeting	Mansfield College, University of Oxford, UK	
TC 11	2 nd -3 rd November, 2011	60 th Committee Meeting in conjunction with QA Workshop Part 1	INCO Hereford, UK	Malcolm S Loveday malcolm.loveday@np.co.uk
TC 11	15 th -16 th May, 2012	61 th Committee Meeting in conjunction with QA Workshop Part 2	Barnwood, Gloucester, UK	Malcolm S Loveday malcolm.loveday@np.co.uk

19th European Conference on Fracture



**August 26-31, 2012
Kazan, Russia**

<http://www.ecf19.ru/>

13th International Conference on Fracture

ICF13
The 13th International Conference on Fracture
May 26-31, 2013
Beijing, China

CONFERENCE VENUE
Beijing International Conference Center

The Beijing International Conference Center is located in the heart of the Olympic Green, right next to the Bird Nest (China National Stadium) and the Water Cube (National Aquatics Center), positioned at the fourth ring road in the northern part of Beijing, which is 26km from the capital airport and 15km to the Forbidden City.

ORGANIZED BY
The Chinese Society of Theoretical and Applied Mechanics (CSTAM)
Fracture Group of Hong Kong, China (FGHKC)
Chinese Mechanical Engineering Society (CMES)
Chinese Materials Research Society (CMRS)
Chinese Society for Corrosion and Protection (CSCP)
Chinese Society of Aeronautics and Astronautics (CSAA)
Fracture Mechanics Group of South China (FMGSC)
The Chinese Society for Metals (CSM)

LOCAL ORGANIZING COMMITTEE
Chairman:
Prof. Shouwen YU (Tsinghua University)
Secretaries:
Prof. Xiqiao FENG (Tsinghua University)
Prof. Yazheng YANG (CSTAM)

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**May 26-31, 2013
Beijing, China**

www.icf13.org/

20th European Conference on Fracture



**30th June 30 - 4th July, 2014
Trondheim, Norway**

<http://www.ecf20.no/>

14th International Conference on Fracture

ICF 14



May 7-12, 2017
Rhodes, Greece

Executive Chair:
Professor Emmanuel Gdoutos
egdoutos@civil.duth.gr

Technical Programme Co-Chair:
Prof. James Marrow,
james.marrow@materials.ox.ac.uk

International Steering Committee:
Professor D M R Taplin
coliemore@hotmail.com

CALENDAR OF CONFERENCES

October 14 th -16 th , 2011	Int. Conf. on Civil Engineering and Transportation (ICCET 2011)	Jinan, China	www.iccet.net e-mail: iccet@188.com
October 26 th -28 th , 2011	II Int. Conf. on Particle-based Methods. Fundamentals and Applications	Barcelona, Spain	www.eccomas.org
October 28 th -30 th , 2011	Int. Conf. on Materials and Products Manufacturing Technology (MPMT11)	Chengdu, China	www.icmpmt.org
November 18 th -20 th , 2011	Int. Conf. on Applied Mechanics, Materials and Manufacturing (ICA3M2011)	Shenzhen, China	http://www.icammm.org e-mail: icammm@vip.163.com
December 16 th to 18 th , 2011	2 nd Int. Conf. Advances in Materials and Manufacturing Processes (ICAMMP2011)	Guilin, China	www.icammp11.org
December 23 rd to 25 th , 2011	Int. Conf. on Chemical Engineering, Materials and Metallurgical Engineering (ICCMME)	Beihai, China	www.iccmme.org
January 15 th -16 th , 2012	Int. Conf. on Mechanical Engineering and Materials (ICMEM 2012)	Melbourne, Australia	www.iiec-association.org/icmcm2012/
March 24 th -25 th , 2012	3 rd Int. Conf. on Manufacturing Science and Engineering (ICMSE 2012)	Xiamen, China	http://www.icmse.net

April 23 rd -27 th , 2012	Advanced Materials Modelling for Structures	Paris, France	e-mail: serge.kruch@onera.fr
June 25 th -27 th , 2012	Int. Conf. on Damage Mechanics (ICDM)	Belgrade, Serbia	http://www.icdm.rs e-mail: info@icdm.rs
June 24 th -28 th , 2012	15 th European Conf. on Composite Materials (ECCM 15)	Venice, Italy	www.eccm15.org
July 1 st -4 th , 2012	5 th Int. Conf. on Engineering Failure Analysis (ICEFA V)	Hilton Hotel, The Hague, Netherlands	www.icefaconference.com/ e-mail: w.zhao@elsevier.com
July 8 th -13 th , 2012	10 th World Congress on Computational Mechanics (WCCM 2012)	São Paulo, Brazil	www.wccm2012.com
July 9 th -13 th , 2012	8 th European Solid Mechanics Conf. (ESMC 2012)	Graz, Austria	www.esmc1012.tugraz.at e-mail: bettina.strametz@tugraz.at
August 26 th -31 st , 2012	19 th European Conf. on Fracture (ECF 19)	Kazan, Russia	www.ecf19.ru e-mail: ecf19@acadenergo.ru
July 1 st -5 th , 2012	IUTAM Symp. Fracture Phenomena in nature and technology	Brescia, Italy	http://events.unitn.it/en/iutam2012
September 10 th -14 th , 2012	6 th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2012)	Vienna, Austria	http://eccomas2012.conf.tuwien.ac.at
September 16 th -21 st , 2012	9 th Int. Conf. on Fatigue Damage of Structural Materials	Hyannis, MA, USA	http://www.fatiguedamageconference.com/index.html
September 19 th -21 st , 2012	4 th Int. Conf. on Crack Paths (CP 2012)	Italy	http://www.CP2012.unipr.it
December, 2012	1 st Int. Conf. on Performance-based and Lifecycle Structural Engineering (PLSE 2012)	Hong Kong, China	http://www.polyu.edu.hk/fclu/PLSE2012 e-mail: clplse@inet.polyu.edu.hk
May 26 th -31 st , 2013	13 th Int. Conf. on Fracture (ICF13)	Beijing, China	http://www.icf13.org
June 3 rd -7 th , 2013	Aeronautical Fatigue and Structural Integrity (ICAF)	Jerusalem, Israel	e-mail: abrot@iaj.co.il
June 16 th -20 th , 2013	11 th Int. Conf. on Structural Safety and Reliability (ICOSSAR 2013)	Columbia University, New York City, USA	www.civil.columbia.edu/icossar2013
September 9 th -13 th , 2013	7 th Int. Conf. on Low Cycle Fatigue (LCF7)	Aachen, Germany	www.lcf7.de

ESIS Procedures and Documents

(free available for ESIS Members at www.structuralintegrity.eu)

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.

<p>P1-92 ESIS RECOMMENDATIONS FOR DETERMINING THE FRACTURE RESISTANCE OF DUCTILE MATERIALS. Responsible body: TC1 Subcommittee on Fracture Mechanics Testing Standards.</p>
<p>P2-92 ESIS PROCEDURE FOR DETERMINING THE FRACTURE BEHAVIOUR OF MATERIALS. Responsible body: TC1 Subcommittee on Fracture Mechanics Testing Standards.</p>
<p>P3-03D DRAFT UNIFIED PROCEDURE FOR DETERMINING THE FRACTURE BEHAVIOUR OF MATERIAL. Responsible body: TC1 Subcommittee on Fracture Mechanics Testing Standards (UNDER PREPARATION NOT AVAILABLE).</p>
<p>P4-92D ESIS RECOMMENDATIONS FOR STRESS CORROSION TESTING USING PRE-CRACKED SPECIMENS. Responsible body: TC10 Committee on Environmental-Assisted Cracking.</p>
<p>P5-00/VAMAS PROCEDURE FOR DETERMINING THE OF FRACTURE TOUGHNESS OF CERAMICS USING THE SEVNB METHOD . Responsible body: TC6 Committee on Ceramics.</p>
<p>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.</p>
<p>P7-00 ESIS PROCEDURE FOR DYNAMIC TENSILE TESTS Responsible body: TC5 Subcommittee on Dynamic Testing at Intermediate Strain rates.</p>
<p>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.</p>
<p>P9-02D GUIDANCE ON LOCAL APPROACH OF RUPTURE OF METALLIC MATERIALS. (UNDER PREPARATION NOT AVAILABLE).</p>
<p>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.</p>
<p>P11-02 TECHNICAL RECOMMANDATIONS FOR THE EXTREME VALUE ANALYSIS OF DATA ON LARGE NONMETALLIC INCLUSIONS Responsible body: TC20 Committee on Inclusions.</p>
<p>D1-92 FRACTURE CONTROL GUIDELINES FOR STRESS CORROSION CRACKING OF HIGH STRENGTH ALLOYS. Responsible body: TC10 Committee on Environmental Assisted Cracking.</p>
<p>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.</p>



2011 Membership Application Form

European Structural Integrity Society

1ST JANUARY 2011 to 31ST DECEMBER 2011

All members will be registered as Individual Members and will receive the ESIS Newsletter, once a year. Membership Fees should be paid either by Cheque or by Credit Card to the value of € 30 (Euros).

Please put a cross (X) in the appropriate box(es) :

Register me as an ESIS member for the year 2011 and send the ESIS Newsletters to the address stated below (in BLOCK CAPITALS please).

Payment details. All cheques are to be made **payable to ESIS**.

Since the membership fee is exceedingly cheap, PLEASE REGARD THIS FORM AS AN OFFICIAL INVOICE, noting that on receipt of your payment you will receive an official receipt plus your ESIS 2011 membership number.

Enclosed is a cheque for € 30 (Euros) payable to ESIS (please write your name, and address on the reverse side of your cheque).

OR

Enclosed is a copy of bank transfer for € 30 (Euros) to ESIS account by the Unicredit Banca, Bank Code IT 22 N 02008 01160 000020016279, BIC Swift Code: UNICREDIT B1080.

OR

Please charge to my (**delete as appropriate**) EUROCARD / MASTER CARD / VISA CARD / DINERS CARD / AMERICAN EXPRESS CARD an amount of € 30 (Euros). My card number is:

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Exp Date:	<input type="text"/>	—	<input type="text"/>
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Surname: _____ Name _____ Title(s) _____

Affiliation: _____

Address: _____

e-mail: _____ Tel No: _____

Fax No: _____

Signature: _____

Date: _____

For ESIS records purposes please give the numbers of the ESIS Technical Committees in which you are most interested (see www.structuralintegrity.eu).

Technical Committee(s):-

All ESIS Procedures and books are free for ESIS Members at www.structuralintegrity.eu

Please return this form to:

ESIS Treasurer
Professor Giuseppe Ferro,
Dept. of Structural Engineering,
Politecnico di Torino,
Corso Duca degli Abruzzi 24
10129 Torino, Italy

or complete the web membership form at www.structuralintegrity.eu

Please print clearly



European Structural Integrity Society

2012 Membership Application Form

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Register me as an ESIS member for the year 2012 and send the ESIS Newsletters to the address stated below (in BLOCK CAPITALS please).

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Enclosed is a cheque for € 30 (Euros) payable to ESIS (please write your name, and address on the reverse side of your cheque).

OR

Enclosed is a copy of bank transfer for € 30 (Euros) to ESIS account by the Unicredit Banca, Bank Code IT 22 N 02008 01160 000020016279.

OR

Please charge to my (~~delete as appropriate~~) EUROCARD / MASTER CARD / VISA CARD / DINERS CARD / AMERICAN EXPRESS CARD an amount of € 30 (Euros). My card number is:

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Exp Date: <input type="text"/>	—	<input type="text"/>	<input type="text"/>
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Surname: _____ Name _____ Title(s) _____

Affiliation: _____

Address: _____

e-mail: _____ Tel No: _____

Fax No: _____

Signature: _____

Date: _____

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10129 Torino, Italy

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