EDITORIAL BY THE ESIS PRESIDENT

Upon reflection of ECF21 in Catania, I presume that most, if not all, of the participants share my view that it was an exceptional event. We are pleased to thank the four Chairmen: Francesco Iacoviello, Beppe Ferro, Donato Firrao and Luca Susmel. There were about 650 participants, many interesting plenary lectures, as well as contributed presentations. There was a summer school before the conference attended by about 80 participants. The summer school and conference lectures will soon be on YouTube. Information will be forthcoming in ESIS News which is periodically sent to ESIS members. The banquet was unforgettable with the memorable fireworks show. Paul Paris who received the Wöhler Medal was the hit of the conference being sought after for pictures and selfies. Three additional awards were given: Robert Goldstein: the Griffith Medal; László Tóth: the Award of Merit; Andrzej Neimitz, Honorary Membership.
In addition, two ESIS members became Fellows: Donato Firrao and Anthony Kinloch. They all deserve our warm congratulations for their outstanding work in structural integrity and service to ESIS. The ESIS-Elsevier young scientist awards were given to Beatriz Sanz (first prize and 1,000 €) from Universidad Politécnica de Madrid, Spain, for: 'Study of the influence of the oxide and concrete parameters on the results of accelerated corrosion tests'; and Evgeniy Merson (second prize and 500 €) from Togliatti State University, Russian Federation, for: ‘The use of confocal laser scanning microscopy for 3D quantitative characterization of fracture surfaces and cleavage facets’. ESIS paid the registration fee for 17 scientists out of 26 to attend ECF21. Many were students. Please remember for ECF22 that ESIS will again pay the registration fee for about 20 participants. In addition, the ExCo decided to reimburse 200 € of their expenses. So please have your students and young faculty members apply for this assistance when it is advertised sometime in the fall of 2017.

As you will recall, ESIS has four affiliated journals including: Engineering Failure Analysis, Engineering Fracture Mechanics, International Journal of Fatigue and Theoretical and Applied Fracture Mechanics. The latter joined us about a year ago and currently has an impact factor over 2. We encourage you to publish your articles in these journals.

At the Council meeting the Statutes were discussed and three changes accepted by the Council members. The updated Statutes will be on the ESIS website shortly. In short the changes include (1) ‘one person, one vote’ and elimination of proxy votes to voting Council members; (2) rewriting of the membership types to make them clearer and (3) officially appointing the Blogger as an ExCo member. In more detail, at Council meetings, any particular member has on only one vote. If a member of Council has two positions which would entitle him/her to vote twice, one of the votes will be given to another person to represent a National Group or a TC. In addition, it was suggested to do away with proxy votes to members of Council who already have a vote. Both of these steps have been accepted to make the Council more democratic.

ESIS is requested to support many conferences, most of which are part of TC or National Group activities. In order to coordinate the dates so as to avoid conflicts, the ExCo has suggested to TC and National Group Chairs to coordinate their meetings with Aleksandar Sedmak.

Since our last Newsletter, our blogger, Per Ståhle, has posted a review of two additional papers:


These are interesting papers which I recommend to you. In addition to the review by Per, there is a response for each paper by one of the authors. We welcome your comments which may be posted on the blog: http://imechanica.org/node/9794

The first Procedia Structural Integrity has been published with papers from the Portuguese National Group. The second issue contains papers from ECF21. They are open access publications. In order to encourage TCs and National Groups to take advantage of this option, ESIS will support part of the publication costs. The ECF21 Procedia may be found at: http://www.sciencedirect.com/science/journal/24523216/2/supp/C.

The ExCo will meet on November 24 and 25 in Belgrade. Among other things, we will look at the site of ECF22 which will take place in Belgrade from August 26 until August 31, 2018.

Finally, I would like to encourage you to join ESIS for 30 €. Go to our web site www.structuralintegrity.eu and sign up. There are various ways to join ESIS. Join a National Committee. Have your university join for a group of faculty members through a National Committee or directly to ESIS; similarly for a group at a company. Or join as an individual. This can easily be done through PayPal.

I wish you all the best of health, fruitful research and future collaborations.

Leslie Banks-Sills
4 Elsevier journals are affiliated with ESIS

<table>
<thead>
<tr>
<th>Engineering Failure Analysis</th>
<th>International Journal of Fatigue</th>
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<tr>
<td>Engineering Fracture Mechanics</td>
<td>Theoretical and Applied Fracture Mechanics</td>
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### Special Issues 2014-16

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<tr>
<th>Journal</th>
<th>Title</th>
<th>Source</th>
<th>Editor</th>
<th>Status</th>
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<tbody>
<tr>
<td>Eng Fract Mech</td>
<td>Special Issue on Multiaxial Fracture 2013</td>
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<td>A. Spagnoli</td>
<td>EFM 123, 2014</td>
</tr>
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<td>Eng Fract Mech</td>
<td>Microstructural effects on macroscopic fracture properties</td>
<td>ECF 19</td>
<td>R. Goldstein, V. Shlyannikov</td>
<td>EFM 130, Nov. 2014</td>
</tr>
<tr>
<td>Eng Failure Anal</td>
<td>Failure analysis of structure components undergone stress corrosion, fatigue and neutron irradiation</td>
<td>ECF 19</td>
<td>R. Goldstein, V. Shlyannikov</td>
<td>EFA 47B, Jan. 2015</td>
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<tr>
<td>Eng Fract Mech</td>
<td>Modelling of ductile fracture and applications</td>
<td>ECF20</td>
<td>Zh.Zhang, B.Skalleurd, E.Østby</td>
<td>EFM 147, October 2015</td>
</tr>
<tr>
<td>Int J Fatigue</td>
<td>Fatigue at all scales</td>
<td>ECF20</td>
<td>B.Skalleurd, A.Wormsen, I.Lotsberg, G. Härkegård</td>
<td>IJF 82, January 2016</td>
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<td>Eng Failure Anal</td>
<td>Recent case studies in Engineering Failure Analysis</td>
<td>ECF20</td>
<td>Zh.Zhang, E.Østby, B.Skalleurd</td>
<td>EFA 58, December 2015</td>
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The ESIS Summers School (June, 18-19) and the ECF21 conference (June, 20-24) were held in the Sheraton Hotel in Aci Castello, Catania, Italy and they were organized by the IGF, Italian Group of Fracture.

ESIS Summer School: four lecturers (Sylvie Pommier, Timon Rabczuk, Daniele Dini and Donato Firrao) and 80 participants from 20 countries (13 from Italy).

The ECF21 was chaired by Francesco Iacoviello, Luca Susmel, Giuseppe Ferro and Donato Firrao and the organizers were strongly supported by all the ESIS TC chairmen and by the Università di Catania (Guido La Rosa). Several national and international sponsors also supported the event.

ECF21 conference: about 700 presentations and about 650 participants (from 44 countries). Details about the countries are shown in the figure here attached.

Full papers will be soon published in Procedia Structural Integrity (Elsevier). This Procedia publishes conference proceedings organized by the European Structural Integrity Society (ESIS), by its Technical Committees or by the National Groups that are affiliated with ESIS, with an emphasis on all areas of Fracture, Fatigue and Structural Integrity. Three special issue will be published in Elsevier journals (Theoretical and Applied Fracture Mechanics, International Journal of Fatigue, Engineering Fracture Mechanics).

All the presentations given during the summer school and many of the presentations given during the conference were videorecorded and they will be published soon in the ESIS YouTube and iTunesU channels.

The following persons received awards from the European Structural Integrity Society (ESIS) and presented at the 21st European Conference on Fracture (ECF21):

- The Wöhler Medal was awarded to P.C. Paris, USA
- László Tóth, Hungary was given the Award of Merit
- Andrzej Neimitz, Poland was awarded the Honorary Membership to ESIS
- Donato Firrao, Italy and Tony Kinloch, UK were awarded the ESIS fellowship
- The ESIS-Elsevier Young Scientist Award
  1st: Beatriz Sanz, Spain
  2nd: Evgeniy Merson, Russia
The social event took place at the hotel "Baia Verde" (a pyromusical show; also the show will be soon available in the ESIS YouTube channel).

All the photos are available in the ESIS FB page: [https://www.facebook.com/ESISweb/photos/?tab=album&album_id=1054432714634102](https://www.facebook.com/ESISweb/photos/?tab=album&album_id=1054432714634102)

Francesco Iacoviello

### National Committees

### Poland

Traditionally, since 1985 national conferences on fracture mechanics have been organized in Poland in September in odd years in the beautiful countryside of the oldest Polish mountain called Świętokrzyskie Góry. Recently, the successful **XV-th conference** was organized by the Technical University of Kielce on 15-18th September 2015. The venue of the conference was of high quality at the Binkowski Hotel located in the green suburb of Kielce-city. Since 1987, the chairman of these conferences has been Professor Andrzej Neimitz - leader of the Polish Group of Fracture Mechanics.

**The XV-th conference** was attended by 60 participants from mainly the Polish academic centers. Among them, the greatest group of participants were from: Technical University of Opole (leader Prof. Tadeusz Łagoda), Technical University of Wrocław (leader Prof. Jerzy Kaleta), Technical University of Kielce (leader Prof. Andrzej Neimitz) and the fatigue group from University of Technology and Science in Bydgoszcz (leaders: Prof. Jozef Szala and Prof. Janusz Sempruch). Among all conference participants there were many the young academic workers. One can be optimistic for the future activity of the fracture mechanics society.

The program of the conference included as well, an excursion to two local historical places,
as follows: the Krzysztopor palace residence (XVII century, see image below), destroyed during the Polish-Swedish wars (1660-1665) and the Baranów castle originated from Renaissance epoch (see image below).

During the conference council meeting **Professor Andrzej Neimitz** resigned as chairman of the national group. He carried out the duties of chairman and the leader of the Polish group of Fracture Mechanics as well, for the 28 years. The new national representative took over: **Professor Dorota Kocanda** from the Military University of Technology in Warsaw.

On behalf of all members of the Polish Group of Fracture Mechanics she cordially thanked Professor A. Neimitz for his active service in the international scientific society as Vice-President of ESIS, as national representative and national conference chairman for many years, as well.

Prof D. Kocanda addressed words of thanks to the team of Prof. A. Neimitz as well, and in particular to Dr Jarosław Gałkiewicz and Mrs Mirosława Łoboda secretaries of the conferences and for their long service to the Polish society of fracture mechanics.

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**Portugal**

After the success of the 2015 event, the Portuguese National Committee announced the **Second International Conference on Structural Integrity ICSI2017** supported by ESIS.

The conference venue will be at the Hotel Casino Park Funchal, Madeira, Portugal, 4-7 September 2017.

Please submit your work by email to icsi@inegi.up.pt before February 15, 2017.

As of now, plenary lecturers by the following distinguished scientists have been confirmed:

- Prof. Antonio Martin-Meizoso, University of Navarra, CEIT IK4, Spain
- Prof. Francesco Iacoviello, Università di Cassino e del Lazio Meridionale, Italy
- Prof. John W. Hutchinson, School of Engineering and Applied Sciences Harvard University, USA
- Prof. Pedro Camanho, Faculty of Engineering of the University of Porto, Portugal

The conference will have a special issue in the International Journal of Fatigue, and the proceedings will be published in Procedia Structural Integrity.

A Best paper and a Young scientist award will be sponsored by ICSI.

It will be a great pleasure to welcome you to Funchal, Portugal, in September 2017!

*Pedro M G P Moreira  
Paulo J S Tavares*

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**Spain**

**International Symposium on Notch Fracture**

29-31 March 2017  
Santander, Spain  
[www.isnf.unican.es](http://www.isnf.unican.es)

The International Symposium on Notch Fracture (ISNF) is an initiative of the Spanish Network of Notch Fracture (Red Española de Fractura de Entallas, REFE), which has been granted by the Spanish Ministry of Economy and Competitiveness (grant MAT2015-71668-REDT). The ISNF will be held in the beautiful city of Santander (Spain) from March 29th to 31st, 2017.

Authors are invited to submit manuscripts reporting original, unpublished research and
recent developments in Notch Fracture. The technical program of the ISNF will consist of plenary lectures and paper presentations. Papers will cover, among others, the following topics:

- Notch fracture in metals, ceramics, polymers and composites
- Approaches to notch fracture: theory of critical distances, energy methods, cohesive zone models, characteristic lengths, microstructural factors, material constants, etc.
- Fracture micromechanisms in notches
- Fracture characterization of notched materials
- Structural integrity approaches in notch analyses
- Fatigue emanating from notches
- Case Studies

All contributions will be peer reviewed by the members of ISNF Scientific Committee. Selected papers will be published in a special issue of Theoretical and Applied Fracture Mechanics (Elsevier).

34th Annual Meeting of the Spanish Fracture Group
29-31 March 2017
Santander, Spain
http://www.gef2017.unican.es/

Sergio Cicero González

TECHNICAL COMMITTEES

TC3: Fatigue Of Engineering Materials And Structures

ACTIVITIES in the years 2016-2017
(a) Professor Andrea Carpinteri (Parma, Italy), Professor Ali Fatemi (Toledo, USA) and Professor Carlos Navarro (Seville, Spain): Chairmen of the 11th International Conference on Multiaxial Fatigue and Fracture (ICMFF11), held in Seville, Spain, 1st to 3rd June, 2016.

(b) Professor Roberto Brighenti (Parma, Italy), Professor Andrea Carpinteri (Parma, Italy), Professor Ali Fatemi (Toledo, USA) and Professor Luca Susmel (Sheffield, UK): Guest Editors of a Special Issue of Engineering Fracture Mechanics (August 2016) entitled "Crack Paths 2015", with papers selected from those presented at the 5th International Conference on Crack Paths (CP 2015), held in Ferrara, Italy, 16th to 18th September, 2015.

(c) Professor Filippo Berto (Padua, Italy), Professor Andrea Carpinteri (Parma, Italy), Professor Sabrina Vantadori (Parma, Italy) and Professor Michael Vormwald (Darmstadt, Germany): Guest Editors of a Special Issue of International Journal of Fatigue (August 2016) entitled “Fatigue Crack Paths 2015”, with papers selected from those presented at the 5th International Conference on Crack Paths (CP 2015), held in Ferrara, Italy, 16th to 18th September, 2015.

(d) Professor Andrea Carpinteri (Parma, Italy), Professor Masahiro Endo (Fukuoka, Japan), Professor Carlos Navarro Pintado (Seville, Spain), and Professor Michael Vormwald (Darmstadt, Germany): Guest Editors of a Special Issue of Engineering Fracture Mechanics entitled "Multiaxial Fracture 2016", with papers selected from those presented at the 11th International Conference on Multiaxial Fatigue and Fracture (ICMFF11), held in Seville, Spain, 1st to 3rd June, 2016.

(e) Professor Andrea Carpinteri (Parma, Italy), Professor Ali Fatemi (Toledo, USA), Professor Thierry Palin-Luc (Talence, France), and Professor Sabrina Vantadori (Parma, Italy): Guest Editors of a Special Issue of International Journal of Fatigue entitled “Multiaxial Fatigue 2016: Experiments and Modeling”, with papers selected from those presented at the 11th International Conference on Multiaxial Fatigue and Fracture (ICMFF11), held in Seville, Spain, 1st to 3rd June, 2016.

Andrea Carpinteri,
Les P. Pook

TC4: Fracture of Polymers and Composites

Report on 2015-16
Co-chairs: Professor Gordon Williams and Professor Andrea Pavan.
ESIS TC4 has continued to meet twice a year throughout 2015 and 2016, in May and September. November 2015 saw the publication of the special issue of Engineering Fracture Mechanics (Volume 149, November 2015) with selected papers drawn from the last ESIS TC4 conference held in Les Diablerets, Switzerland in September 2014. Guest Editors were Bamber Blackman and Gordon Williams.

At the regular meetings, the committee continues to progress in the current work areas. These include elastic and elastic-plastic test methods for polymers, fracture of polymers at high test rates, mode II and mixed-mode fracture in composites, fatigue of composites,
short fibre composites, structural adhesives testing, the peel testing of flexible laminates and environmental stress cracking of polymers. The following protocols have been submitted to ISO for consideration as international standards:

- Essential work of fracture for polymer films.
- Determination of the interlaminar fracture toughness of flexible packaging laminates.

The committee hosted a mini-symposium at ECF21 in Catania. Additionally, the committee will hold its 8th International Conference in the series on the Fracture of Polymers, Composites and Adhesives in September 2017. The venue will be the mountain resort of Les Diablerets in Switzerland.

Dates for 2016-17

- 17th – 19th May 2017: Regular committee meeting in Les Diablerets.
- 10th - 14th September 2017: 8th International ESIS TC4 Conference on the Fracture of Polymers, Composites and Adhesives. Les Diablerets, Switzerland.
- 14th-15th September 2017: Regular committee meeting in Les Diablerets.

Bamber Blackman

**TC 10: Environmentally assisted cracking**

The integrity of oil and gas transmission pipelines has always been a subject of interest in TC10 since the corrosive influence of aggressive environments on metals can be accounted for. It is shown by operational experience of pipelines that stress corrosion cracking and corrosion fatigue are the main causes of their unpredictable failures. This indicates that failures were induced by crack growth under the simultaneous action of mechanical stresses and corrosive environment.

Ukraine, being one of the most important transit countries for gas exports to the European Union, has an extended network of natural gas transmission pipelines. The peculiarity of the gas transit infrastructure of Ukraine is its age, which implies the deterioration of the physical and mechanical material properties associated with the safe serviceability of the pipelines. Such deterioration is induced by hydrogen-assisted corrosion, which also causes metal embrittlement and increases the risk of uncontrollable failure of gas pipelines by unstable crack propagation.

The North Atlantic Treaty Organization (NATO) implements the Science for Peace and Security Programme, which involves both NATO member countries and partner countries of NATO, including Ukraine. This program aims to enhance cooperation and dialogue with all partners on the basis of scientific research, innovation, and knowledge exchange. Under this program, in February 2016, Politecnico di Milano (Italy) jointly with Karpenko Physico-Mechanical Institute of the National Academy of Sciences of Ukraine began implementation of the three-year research project "Development of novel methods for the prevention of pipeline failures with security implications". The ultimate aim of the project is to develop novel non-destructive methods of diagnostics of the current technical state of long-term exploited pipeline steels taking into account their hydrogen-induced degradation to improve their operational safety. The methods will be based on instrumental indentation and electrochemical techniques. Applying the developing methods will help to prevent failures of pipelines and to avoid potential negative consequences for safety. A successful implementation of the project will help to maintain the stable operation of the gas transportation system of Ukraine, which is strategically important for the energy security of both Ukraine and the European Union.

The project co-directors are Prof. Gabriella Bolzon from Italy and Prof. Hryhoriy Nykyforchyn from Ukraine. It is assumed that the developed non-destructive methods of diagnostics will be used by Venezia Tecnologie S.p.A. (Porto Marghera, Venezia, Italy), eni S.p.A. (Rome, Italy), Public Joint-Stock Company “UKRTRANSGAZ” (Kyiv, Ukraine) and its regional institutions.

Participants of the project kick-off meeting at NATO Headquarters (left to right): Dr. Oliha Zvirko, Dr. Susanne Michaelis; Prof. Gabriella Bolzon, Prof. Hryhoriy Nykyforchyn.

The susceptibility of pipeline steel to stress corrosion cracking by the hydrogen embrittlement mechanism is considered as the most dangerous factor of integrity violation of high-pressure gas transmission pipelines. The peculiarity of hydrogen action during the long-
term service of pipeline accumulation consists in a development of so-called damage accumulation in the metal. Models of hydrogen diffusion will be also developed with the aim of providing a deeper understanding of the associated damage scenarios. An extensive experimental campaign will be performed at Karpenko Physical-Mechanical Institute with the aim of developing a validated prediction model of the evolution of the mechanical properties of steels exposed to an aggressive environment in the presence of hydrogen, to be used as a diagnostic tool of pipeline degradation in operating conditions. Expertise in this field will be supported by the University of Salamanca (the group of Prof. J. Toribio), involved, namely, in a recent EU Project on “Multiscale Modelling of Hydrogen Embrittlement” (http://www.multihy.eu/).

The project kick-off meeting took place at NATO Headquarters in Brussels, Belgium on the 29 January 2016, involving the project co-directors, researcher and NATO staff. Participants of the kick-off meeting discussed the project work plan, as well as scientific, technical, financial and legal aspects of its implementation so as to successfully meet the project objectives.

More information related to the project can be found on the following link: http://www.dica.polimi.it/index.php?id=869.

G. Bolzon  
J. Toribio  
H.M. Nykyforchyn

TC 11: High Temperature Mechanical Testing

3rd Int. Workshop on Thermo-Mechanical Fatigue

The committee TC11 has held the 3rd International Workshop on Thermo-Mechanical Fatigue on 27-29, April 2016 at Bundesanstalt für Materialforschung und -prüfung (BAM) in Berlin, Germany. 90 participants attended the workshop coming from 17 countries including USA, Canada, Japan, South Korea, China, India, Iran and many European countries. At the workshop 33 oral presentations were held and five posters. The presentations covered the following topics:

- TMF properties of steels, Ni-, Al-, Mg-alloys
- TMF+ Thermal Barrier Coatings/Thermal Gradient Fatigue
- TMF+HCF
- TMF crack growth
- Advanced TMF testing techniques
- Industrial applications

At the workshop a panel discussion was held on the actual TMF testing standards ISO 12111 and ASTM E 2368. Several aspects of the standards were identified for amendment in the next revision which is ongoing this year. The results of the discussion will be forwarded to ISO and ASTM standard committees. Furthermore aspects for future research and development of thermo-mechanical fatigue were discussed.

It is intended to publish the presentations on the workshop website www.tmf-workshop.bam.de. Selected full papers will be published in a special issue of the International Journal of Fatigue. Presently the papers are in the peer review process. The special issue is expected to be published at the end of 2016. Summarizing the 3rd Int. Workshop on Thermo-Mechanical Fatigue was a very successful event. The feedback of attendees was very positive. It is intended to continue this series of TMF workshops. The next workshop will take place probably in five years time.

Another workshop is intended to be held in autumn 2016: High Temperature Mechanical Testing: Advances in Materials Testing and Temperature Measurements Techniques, 17-18 Nov 2016, ARMC Rotherham, UK. The workshop will cover the following topics:

- Small punch creep testing
- Thermal drift in thermocouples
- Non- contact temperature measurement in mechanical testing
- Strain & heating rate effects
- Testing in harsh environments
- In-situ temperature calibration
- A CoP for temperature measurement in mechanical testing

The workshop will be held in conjunction with a TC11 committee meeting.

Hellmuth Klingselhöffer

TC 13: Education and Training

Summer School on Fracture Mechanics

The 14th Polish-Ukrainian-German Summer School on Fracture Mechanics was held in Ternopil (Ukraine) at Ternopil National Ivan Pul’uj Technical University on the 24-25 of September 2015. The program committee was comprised of Professors V. Panasyuk (Ukraine), W. Kasprzak (Poland), P. Yasniy (Ukraine), J. Kaleta (Poland), G. Nykyforchyn (Ukraine) and L. Tóth (Hungary). The Summer School was held with the organizational and financial support of ESIS and personally of President Professor Leslie Banks-Sills.
The School was entitled: **Damage and Integrity of Structures**.

Thirty-six representatives from four European countries (Ukraine – 20, Poland – 11, Romania – 2, Hungary – 3) have participated in the School. The School opening ceremony was announced by the Chairman of the Organizing Committee Professor P. Yasniy, who presented the Program of the School. Then Professor V. Panasyuk presented the activity of the previous Schools which was illustrated in the book “Summer Schools on Fracture Mechanics” (authors V. Panasyuk, W. Kaspzrak). He also spoke about new status of Schools (speech of Professor V. Panasyuk is attached). He stressed that starting from the 15th School the following Schools would be held under the auspices of ESIS Technical Committee "Education and Training". Therefore it is necessary to start the preparation of the 15th School in the near future, in particular, to prepare the program and define the venue and dates of the 15th School. Proposals for the next School are to be prepared by the ESIS National groups of the Central and East European countries and to be sent to ESIS TC 13 at the beginning of the year.

All lectures, scheduled for the 14th School, have been delivered. They are as follows:

1. Professor P. Yasniy, Ternopil National Ivan Pul’uj Technical University, Ukraine, gave lectures entitled «Basic approaches of fracture mechanics» and «Basic concepts and mechanisms of fatigue», in which the general state of the progress in fracture mechanics of materials and new approaches to the structural elements strength estimation, developed within the concept of fracture mechanics, were presented.

   Oleg Yasniy, Ternopil National Ivan Pul’uj Technical University, Ukraine, delivered the exercise session "The calculations of residual lifetime of structural elements under cyclic loading considering the scatter of cyclic crack growth resistance characteristics". The practical aspects of considering the technological operating factors influence on large-sized structural elements with a crack were presented. During the exercise session the students had the opportunity to learn the basic methods of fracture mechanics and mathematical statistics approaches to the estimation of the lifetime of long-term operating structural elements.

   Professor Laslo Tóth, Institute of Logistics and Production Systems of Bay Zoltan Foundation for Applied Research, Hungary, gave a lecture «Semi non-destructive material characterization for ageing monitoring of operating components», in which new methods of non-destructive testing of technical objects were analysed.

   Professor Hryhoriy Nykyforchyn, Karpenko Physico-Mechanical Institute, Ukraine, took the floor with a presentation «The main regularities and methods of evaluation of dissipation damage in steels caused by its long-term service». In this presentation special attention was paid to the problems on the effect of hydrogen on metal degradation, especially under dissipative damage and to new methods of technical diagnostics of structural and mechanical defects in this case.

   Professor Arnold Krasowski, Pisarenko Institute for Problems of Strength, the NAS of Ukraine: in his lecture "Application of fracture mechanics methodology to the structural integrity assessment of some industrial objects" showed the importance of the use of two-criteria approaches of fracture mechanics in estimating the technical state of important industrial structures, in particular, pipelines under long-term exploitation.

   Professor Jerzy Kaleta, Wroclaw University of Technology, Poland delivered a lecture «Design, manufacturing, modelling, monitoring and testing of high-pressure composite vessels for hydrogen storage», in which the problem analysis and achievements of his scientific subdivision were presented. He also noted that the methods of fracture mechanics and materials science were to be directed at creation of new materials (steels) with high fracture-resistant properties.

   All students were awarded certificates as Summer School participants. At the final meeting all participants supported the suggestion of Professor V. Panasyuk and decided to propose to the President of ESIS to transform the Summer School of fracture mechanics into the Summer School in Eastern and Central Europe under the auspices of ESIS. After the closing ceremony of the Summer School, its further functioning was discussed with the President of ESIS, which supported in general the idea of transformation. Nevertheless, she proposed the renewed Committee to hold the Summer School on Fracture Mechanics annually. The even year Summer School should be held in the framework of ECFs, and the odd year Summer Schools not associated with ECFs would not be directed only to Eastern and Central Europe, but to all European countries. The place and date of Summer School will be discussed at the ESIS TC 13 meeting during ECF21 in Catania (Italy).
The meeting of Technical Committee 13 was held during ECF21. The participants of this meeting were Prof. Leslie Bank, Co-chairmen Prof. Petro Yasniy and Liviu Marsavina, Prof. Hryhorii Nykyforchyn (Ukraine), Prof. Andrzej Neimitz (Poland) and Prof. Jesus Toribio (Spain), Prof. Aleksander Sedmak (Serbia), Prof. Zeljko Bozic (Croatia), Prof. Nenad Gubeliak (Slovenia), Prof. László Tóth (Hungary), Dr. Jaroslav Galkiewicz (Poland), Szabolcs Szávai (Hungary).

Petro Yasniy informed participants about the activities of the Committee after its resumption in 2015. The Committee membership was determined. The 14th Polish-Ukrainian-German Summer School on Fracture Mechanics was held with the assistance of ESIS.

The Ukrainian National Group suggestion about reorganizing the Polish-Ukrainian-German Summer School on Fracture Mechanics under the authority of ESIS which will be organized by TC 13 in odd years was discussed and accepted.

The suggestions about organizing the Summer Schools on Fracture Mechanics in 2017-2020 were discussed. Taking into account the dates of ECF22 and ECF23 and Prof. Zeljko Bozic and Prof. Andrzej Neimitz’s suggestions, the summer schools will be held in Dubrovnik (Croatia) in August 2017, in Belgrade (Serbia) in 2018, in Poland in 2019 and in Funchal, Madeira (Portugal) in 2020.

Prof. László Tóth proposed to extend TC13 activities by offering different special courses belongs to the topic of structural integrity assessment of engineering components including the damage processes at very different operating conditions, NDT engineering and numerical simulation of the fields arising in structures in real working conditions. The 3-4 days cost effective courses is planned to organize in different countries where the personal and equipments circumstances are assured.

The decision to apply to ESIS Executive Committee for permission to increase the TC 13 membership up to 16 persons and to include Prof. Jesus Toribio (Spain), Prof. Zeljko Bozic (Croatia), Dr. Jaroslav Galkiewicz (Poland) in TC 13 was made.

Petro Yasniy

**TC 24: Integrity of Railway Structures**

The activity of TC24 continues to be lively.

In May 2016, a special issue of Int. J. Fatigue entitled ”Railway Axles: Advances in Design and Maintenance" was published. The volume, edited by S. Beretta, contains selected papers by the presentations delivered at the last TC24 meeting held in October 2014.

The next ESIS TC24 workshop "Integrity of Railway Structures" will take place on the 24th and 25th of October 2016 at the Materials Center Leoben (MCL), Roseggerstrasse 12, A-8700 Leoben, Austria (www.mcl.at), by H.P. Ganser.

The workshop will provide an opportunity for the axle community to meet again and discuss results from EBFW3 aiming at the determination of inspection intervals based on a fatigue crack growth and assessment (see http://esistc24.mecce.polimi.it/ for a project overview) as well as any other ongoing activities.

Presentations about other railway components – namely rails and switches – will be also delivered, enlarging the view to other critical railway components.

Written contributions will be published in an issue of Procedia Structural Integrity, whose guest editors will be H.P. Ganser (local organiser) and S. Beretta (TC24 Chairman).

Stefano Beretta
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 18 or
**www.structuralintegrity.eu**

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**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 other ESIS Members
## CALENDAR OF TC MEETINGS & ACTIVITIES

<table>
<thead>
<tr>
<th>TC</th>
<th>Date</th>
<th>Meeting Details</th>
<th>Location</th>
<th>Contact Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC24</td>
<td>24-25&lt;sup&gt;th&lt;/sup&gt; October 2016</td>
<td>TC24 meeting 8th International ESIS TC4 Conference on the Fracture of Polymers, Composites and Adhesives</td>
<td>Leoben, Austria</td>
<td><a href="mailto:stefano.beretta@polimi.it">stefano.beretta@polimi.it</a></td>
</tr>
<tr>
<td>TC4</td>
<td>10-14&lt;sup&gt;th&lt;/sup&gt; September 2017</td>
<td>8th International ESIS TC4 Conference on the Fracture of Polymers, Composites and Adhesives</td>
<td>Les Diablerets, Switzerland</td>
<td></td>
</tr>
<tr>
<td>TC5</td>
<td>25-27&lt;sup&gt;th&lt;/sup&gt; September 2017</td>
<td>XXVII International Conference «Mathematical and Computer Simulation in Mechanics of Solids and Structures»</td>
<td>St. Petersburg, Russia</td>
<td><a href="mailto:bratov@me.com">bratov@me.com</a></td>
</tr>
</tbody>
</table>

## CALENDAR OF CONFERENCES & WORKSHOPS

<table>
<thead>
<tr>
<th>Month</th>
<th>Conference Title</th>
<th>Location</th>
<th>Contact Email</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 6-8, 2016</td>
<td>18th International Colloquium on Mechanical Fatigue of Metals (ICMFM XVIII)</td>
<td>Gijón, Asturias, Spain</td>
<td><a href="mailto:acf@uniovi.es">acf@uniovi.es</a></td>
<td><a href="http://www.ESIS.org/conferences/ICMFMXVIII/2016/">http://www.ESIS.org/conferences/ICMFMXVIII/2016/</a></td>
</tr>
<tr>
<td>June 18-23, 2017</td>
<td>Fourteenth International Conference on Fracture (ICF14)</td>
<td>Rhodes, Greece</td>
<td></td>
<td></td>
</tr>
<tr>
<td>July 3-5, 2017</td>
<td>Seventh International Conference on Very High Cycle Fatigue (VHCF7)</td>
<td>Dresden, Germany</td>
<td></td>
<td><a href="https://drive.google.com/file/d/0B51sKDZDChoNNV9GeS1ZUjVNS0k/edit?pref=2&amp;pli=1">https://drive.google.com/file/d/0B51sKDZDChoNNV9GeS1ZUjVNS0k/edit?pref=2&amp;pli=1</a></td>
</tr>
<tr>
<td>August 12-19, 2017</td>
<td>Summer School and International workshop - symposium</td>
<td>Dubrovnik, Croatia</td>
<td><a href="mailto:Zeljko.Bozic@fsb.hr">Zeljko.Bozic@fsb.hr</a></td>
<td></td>
</tr>
<tr>
<td>September 4-7, 2017</td>
<td>2nd International Conference on Structural Integrity</td>
<td>Funchal, Madeira, Portugal</td>
<td><a href="http://icsi.inegi.up.pt/">http://icsi.inegi.up.pt/</a></td>
<td><a href="mailto:pmoreira@inegi.up.pt">pmoreira@inegi.up.pt</a></td>
</tr>
<tr>
<td>September 19-22, 2017</td>
<td>Fatigue Damage and Material Defects - 3</td>
<td>Lecco, Italy</td>
<td><a href="mailto:fdmd3-lecco@polimi.it">fdmd3-lecco@polimi.it</a></td>
<td></td>
</tr>
<tr>
<td>August 26-31, 2018</td>
<td>22&lt;sup&gt;nd&lt;/sup&gt; European Conference of Fracture (ECF22)</td>
<td>Belgrade (Serbia)</td>
<td></td>
<td><a href="mailto:asedmak@mas.bg.ac.rs">asedmak@mas.bg.ac.rs</a></td>
</tr>
<tr>
<td>August 24-26, 2018</td>
<td>Summer School in the scope of ECF22.</td>
<td>Belgrade (Serbia)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Conference Organization

Chairman:
Peter Panfilov (Russia)

International Committee:
Lesley Comish (South Africa), Antonin Dluhy (Czech Republic), Gunther Eggele (Germany), Uwe Glätzl (Germany), Hiroshi Harada (Japan), Robert W. Hayes (USA), Martin Hellmaier (Germany), Haruyuki Inui (Japan), Muthuswamy Kamaraj (India), Michael Kassner (USA), Kazuhiro Kimura (Japan), Georgii Kadzaspov (Russia), Michael J. Mills (USA), Peter Panfilov (Russia), Stefano Spigarelli (Italy), Elekman Viguier (France), Mark Whittaker (UK), Alfredo Yawny (Argentina), Zhufeng Yue (China).

Organizing Committee:
Alexander Glezer (I.P. Bardin Central Research Institute for Ferrous Metallurgy, Moscow), Georgii Kadzaspov (Polytech, Saint Petersburg), Vadim Koroblev (Polytech, Saint Petersburg), Peter Panfilov (URFU, Yekaterinburg), Andrey Popov (URFU, Yekaterinburg), Andrei Ristoi (Polytech, Saint Petersburg), Nadezhda Seleznova (URFU, Yekaterinburg), Vladimir Starenchenko (TUSUAB, Tomsk).

Important Dates

July 2016: Submission opening;
December 30, 2016: Deadline for the abstract submission;
February 2017: Notification of acceptance, Registration opening;
June 18, 2017: Conference opening

Conference Secretariat

Phone: +7-343-261-5343
Email: creep2017.ru@mail.ru
Web: www.creep2017.urfu.ru

Topics:

- Creep mechanisms;
- Modelling and simulation of creep;
- Experimental setups for creep type tests;
- Microstructure evolution and damage during creep;
- Creep of structures and creep — fatigue interactions;
- Creep under special conditions;
- The role of chemical composition on creep behavior;
- Creep behavior of Natural materials;
- Creep behavior of intermetallic compounds and alloys.

It will concern a wide range of materials:

- Metals and alloys: steels and iron based alloys, Ni and Co based superalloys, intermetallics and light alloys (Ti, Zr …);
- Ultra high temperature materials: silicides, ceramics;
- Metal matrix and ceramic matrix composites;
- Natural materials.
Fatigue of Materials and Applications to Design

a course given by Professor Ali Fatemi

will be held at Volvo GTT (Trucks) in
Gothenburg, Sweden, October 4 - 5, 2016
From 8 a.m. the 4th to 5.15 p.m. the 5th

The Swedish Fatigue Network UTMIS was founded in 2000. It is a network with some 40 members from Swedish companies, research institutes and universities; visit the web-site www.utmis.org for a list of all UTMIS members. The UTMIS board acts as a national committee within ESIS, the European Structural Integrity Society.

UTMIS has three regular network meetings every year. Those meetings are arranged as seminars on specific fatigue themes. UTMIS members are invited to share knowledge and experiences from results and observations made in their daily work. There are also a few collaboration projects, funded by UTMIS, running between UTMIS members. The major event is the course arranged by UTMIS every autumn. An internationally well-known speaker is invited to give a course on a fatigue topic.

Course 2016
This year the speaker is Professor Ali Fatemi from University of Toledo.

Program:
Lecture 1, Fatigue design models
Lecture 2, Strain-based fatigue design approach and applications
Lecture 3, Multiaxial fatigue (Basic concepts and models)
Lecture 4, Multiaxial fatigue (Applications to notched members and service load histories)
Lecture 5, Fatigue of ductile iron
Lecture 6, Fatigue of elastomers
Lecture 7, Fatigue of polymers
Lecture 8, Fatigue of fibre composites

Location
The course will take place at Volvo GTT (Trucks), Gropegardsgatan, Volvo Lundby B-port in Gothenburg.

Accommodation
Hotel proposal: Clarion Post, Drottningsgatan 10, Gothenburg, www.clarionpost.se
For booking: meetings.post@ahotels.se
Reserved rooms between Oct 3 to Oct 5, shall be booked latest August 3rd. Price for single room SEK 1,586. First come, first served.
State Booking No: 2006GR002167 and
Name, single or double room, date of arrival and how many nights.

Course Fee
There is no course fee for UTMIS members. For non UTMIS members, the course fee is SEK 5,000. It includes participation in the workshop, course material and refreshments at morning and afternoon coffee breaks, two lunches, and dinner in the evening October 4.

Registration
Send the registration as soon as possible but latest on September 16, 2016 by e-mail to Anita Karlénström, e-mail: anita.karlénström@sp.se

Questions could be sent to the chairman of UTMIS:
Jörgen Larsson
SP Technical Research Institute of Sweden
Box 857
SE-501 15 Borås, SWEDEN
Phone: +46 (0)10 516 56 94
e-mail: jorgen.larsson@sp.se
General Information
Founded by Professor T. Yokokawa in 1985, the International Congress on Fracture is today the premier international body for promoting worldwide cooperation among scientists and engineers dealing with mechanisms and mechanisms of fracture, fatigue and strength of solids. Over the years, ICF has made considerable progress in providing an international forum for highlighting individual and national accomplishments as well as general fields of Fracture Mechanics. Material strength and structural integrity. The International Conference of ICF takes place every four years.

Rhodes, Greece
June 18-23, 2017

ICF14
14th International Conference on Fracture

Under the auspices of the International Congress on Fracture
http://www.icf14.org

Conference Chairman
Emmanuel E. Gidopoulos
gidopoulos@ice.lib.duth.gr

Technical Programme Chairs: A. Roukas, M. Konsta-Gdopoulos
Int. Steering Committee Chair: D. Taplin

Location
The conference will take place in the Rodos Palace hotel on the island of Rhodes, located in the south-east part of Greece between the Aegean and Mediterranean seas. Rhodes has a unique scenic beauty with areas of historical interest and archaeological importance. Take a stroll and admire the gates, the tower, the squares, the medieval churches, the bridge, the Castle of Knights, the old City, the Acropolis, the ancient monument, the Temple of Zeus, Athena and Apollo, the Palace of the Grand Master, the stadium. Visit the valley of the butterflies, the Monastery of Stavros, the ancient picturesque city of Lindos with its Acropolis, temple and towers, the monastery of Panagia Tsambika with its marble-working icon. Welcome to the island of sea nymphs, Rhodes, daughter of Poseidon (Neptune), bride of Herakles (Hercules). Enjoy the seascapes scattered from Hermes that made Rhodes the highest and sunniest island of the Aegean Sea.

Conference Tracks

Track 1
Nanomaterials and Nanostructures
- Fatigue and fracture of nanomaterials
- Failure mechanisms
- Fatigue and fracture of MEMS and NEMS
- Failure analysis of nanodevices
- Fatigue and fracture of atomic and molecular scales
- Nanotubes
- Electronic materials
- Failure of nanocomposites

Track 2
Engineering Materials and Structures
- Physical aspects of fracture
- Micromechanics in fracture and fatigue
- Bending fracture
- Ductile fracture
- Nonlinear fracture mechanisms
- Fatigue and fracture
- High-temperature fracture

Special Symposia
A series of special symposia on cutting-edge technologies honoring renowned scientists will be organized.

Transportation
There are regular international flights to and from Rhodes International airport from most European cities, usually during the summer.

Important Dates
Abstract due: October 31, 2016
Notification on abstract: December 19, 2016
Registration (Early): March 31, 2017
Hotel reservation: April 30, 2017
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", i.e: not yet approved, while
3. D prior to the year (eg: D1-92) means "Document" other than test methods.

<table>
<thead>
<tr>
<th>P1-92</th>
<th>ESIS RECOMMENDATIONS FOR DETERMINING THE FRACTURE RESISTANCE OF DUCTILE MATERIALS.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Responsible body: TC1 Subcommittee on Fracture Mechanics Testing Standards.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>P2-92</th>
<th>ESIS PROCEDURE FOR DETERMINING THE FRACTURE BEHAVIOUR OF MATERIALS.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Responsible body: TC1 Subcommittee on Fracture Mechanics Testing Standards.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>P3-03D</th>
<th>DRAFT UNIFIED PROCEDURE FOR DETERMINING THE FRACTURE BEHAVIOUR OF MATERIAL.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Responsible body: TC1 Subcommittee on Fracture Mechanics Testing Standards (UNDER PREPARATION NOT AVAILABLE).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>P4-92D</th>
<th>ESIS RECOMMENDATIONS FOR STRESS CORROSION TESTING USING PRE-CRACKED SPECIMENS.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Responsible body: TC10 Committee on Environmental-Assisted Cracking.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>P5-00/VAMAS</th>
<th>PROCEDURE FOR DETERMINING THE FRACTURE TOUGHNESS OF CERAMICS USING THE SEVNB METHOD.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Responsible body: TC6 Committee on Ceramics.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>P6-98</th>
<th>ESIS PROCEDURE TO MEASURE AND CALCULATE MATERIAL PARAMETERS FOR THE LOCAL APPROACH TO FRACTURE USING NOTCHED TENSILE SPECIMENS.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Responsible body: TC8 Committee on Numerical Methods.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>P7-00</th>
<th>ESIS PROCEDURE FOR DYNAMIC TENSILE TESTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Responsible body: TC5 Subcommittee on Dynamic Testing at Intermediate Strain rates.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>P8-99D</th>
<th>ESIS DRAFT CODE OF PRACTICE FOR THE DETERMINATION AND INTERPRETATION OF CYCLIC STRESS-STRAIN DATA.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Responsible body: TC11 Committee on High Temperature Mechanical Testing.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>P9-02D</th>
<th>GUIDANCE ON LOCAL APPROACH OF RUPTURE OF METALLIC MATERIALS. (UNDER PREPARATION NOT AVAILABLE).</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>P10-02</th>
<th>A CODE OF PRACTICE FOR CONDUCTING NOTCHED BAR CREEP RUPTURE TESTS AND INTERPRETING THE DATA.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Responsible body: TC11 High Temperature Mechanical Testing Committee.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>P11-02</th>
<th>TECHNICAL RECOMMENDATIONS FOR THE EXTREME VALUE ANALYSIS OF DATA ON LARGE NONMETALLIC INCLUSIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Responsible body: TC20 Committee on Inclusions.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D1-92</th>
<th>FRACTURE CONTROL GUIDELINES FOR STRESS CORROSION CRACKING OF HIGH STRENGTH ALLOYS.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Responsible body: TC10 Committee on Environmental Assisted Cracking.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D2-99</th>
<th>FRACTURE TOUGHNESS OF CERAMICS USING THE SEVNB METHOD; ROUND ROBIN, TEST PROGRAMME.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>Responsible body: TC6 Committee on Ceramics.</td>
</tr>
</tbody>
</table>
2016
Membership Application Form
1ST JANUARY 2016 to 31ST DECEMBER 2016

All members will be registered as Individual Members and will receive the ESIS Newsletter, at least once a year, by electronic delivery to the provided e-mail address. Membership Fees should be paid either by bank transfer or by Credit Card or by PayPal 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 2016 and send the ESIS Newsletters to the address stated below (in BLOCK CAPITALS please).

Payment details.
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 2016 membership number.

☐ Enclosed is a PayPal payment receipt/details

OR

☐ Enclosed is a copy of bank transfer for € 30 (Euros) The bank is: Uncredit banca The name of the beneficiary is: ESIS (European Structural Integrity Society) the coordinates are:

IBAN: IT22 N 02008 01160 000020016279
BIC SWIFT Code: UNCRITM1AG0

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:

_____________________________________________________

Surname: Name Title(s)

Affiliation:

Address:

e-mail: Tel No:

Fax No:

Please print clearly

Signature:

Date:

For ESIS records purposes please give the numbers of the ESIS Technical Committees in which you are most interested

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