

**ECF 22 - LOADING AND ENVIRONMENT EFFECTS ON STRUCTURAL INTEGRITY 26 – 31 August 2018**

**SUMMER SCHOOL 25-26 August 2018, Belgrade, Serbia**

**[www.ecf22.rs](http://www.ecf22.rs)**



### Location and Transportation

**Belgrade** is the capital of Serbia, with cca 1.8 million inhabitants. It is located in the south-east Europe, in the Balkan Peninsula, at the confluence of the Sava and Danube rivers. The official monetary unit is dinar (RSD). International airport “Nikola Tesla” offers services not only by domestic airlines (Air Serbia), but also by many other companies, including low cost companies. Transfer from the airport to the city center is easy using mini-bus or using taxi (20 euros). The highway network enables frequent bus connection between major European cities, and comfortable travel by car to Belgrade. Train connections are also possible.

### Venue

Metropol Palace, a Luxury Collection Hotel, Bulevar Kralja Aleksandra 69, Belgrade, Serbia. More details on accommodation on **[www.ecf22.rs](http://www.ecf22.rs)**.



**<http://www.metropolpalace.com/>**

## **Registration and fees**

<b>Registration fee *</b>	<b>Before 20.2.2018</b>	<b>Before 20.6.2018</b>	<b>After 26.8.2018</b>
<b>Regular</b>	<b>530 €</b>	<b>580 €</b>	<b>630 €</b>
<b>ESIS member</b>	<b>450 €</b>	<b>500 €</b>	<b>550 €</b>
<b>Students</b>	<b>150 €</b>	<b>150 €</b>	<b>200 €</b>
<b>Accompanying persons</b>	<b>150 €</b>	<b>150 €</b>	<b>200 €</b>

\* on-site cash payment will be possible

The registration fee includes conference material, welcome reception, conference banquet, refreshments and lunch during conference days.

Payment will be possible by bank transfer, credit cards, pay-pal and on-site in cash, see [www.ecf22.rs](http://www.ecf22.rs).

## **Main topics**

### **Loading types**

- static and quasi-static loading
- cyclic loading of variable amplitudes (high cycle-loading well below yield stress; low cycle loading after initial yielding)
- vibrations
- impact and earthquake loading
- combined loading

### **Environment**

- corrosion
- high operating temperatures
- temperatures in the range of nil ductility transition (NDT) and below it
- combined environmental effects
- hydrogen embrittlement

### **Structures**

- power plants
- process equipment in petrochemical industry
- welded structures
- civil engineering objects
- transportation

### **Materials**

- metallic materials
- plastics
- ceramics
- composite materials
- nanomaterials

### **Plenary lecturers:**

**Jim Rice**, Boston, USA, Perspectives on dynamic fracture arising from study of earthquake ruptures

**Jovo Jaric**, Serbia, Conservation laws of J integral type

**Youshi Hong**, China, The State of the Art in Very-High-Cycle Fatigue Research

**Uwe Zerbst**, Germany, Application of fracture mechanics to S-N curve prediction. Requirements and perspectives

**Drazen Kozak**, Croatia & **Nenad Gubelj**, Slovenia, Fracture behavior of wrought and additive manufactured implant's alloy

**Yonggang Huang**, USA, Soft Network Composite Materials with Deterministic and Bio-Inspired Designs

**Robert Ritchie**, USA, Damage Tolerance in Biological and Metallic Material

**Takayuki Kitamura**, Japan, Challenge toward Nanometer Scale Fracture Mechanics

**William Curtin**, Switzerland, Mechanisms of Hydrogen Embrittlement: Insights from Atomistic Studies

**Meinhard Kuna**, Germany, Micromechanical Modeling of Fracture in Metallic Materials”

### **Proceedings and Publication**

Abstracts will be published in the form of ECF22 e-book and available during the registration. Full papers will be published in Proceedia Structural Integrity journal by Elsevier in the form of ECF22 Proceedings. Authors of selected papers will be invited to submit extended versions of papers for a special issue of “Engineering Fracture Mechanics”, “Engineering Failure Analysis”, “International Journal of Fatigue” or “Theoretical and Applied Fracture Mechanics”, as well as Structural Integrity and Life (DIVK Journal) journals.

### **Minisymposia**

Siegfried Schmauder & Zeljko Bozic, „Multiscale Damage Analysis of Fatigue and Fracture of Metals“

Vadim Silberschmidt “Damage and Fracture of Biological and Biomedical Materials“

Filippo Berto and Luca Susmel, “Structural integrity of Additive Manufactured materials“

PetroYasniy and Liviu Marsavina „Teaching of Structural Integrity“

Jacques Besson, „Numerical Methods in Fracture Mechanics“

Uwe Zerbst, Stefano Beretta, “Defects and fatigue”

Yuri Petrov, Vadim Silberschmidt, “Fracture and Structural Transformations under High Rate and Impact Loading”

Peter Trampus, Non-destructive methods in Fracture Mechanics

Jose Antonio Correia, Vladimir Moskvichev, Risk Analysis and Safety of Technical Systems.

Milos Djukic, William Curtin, Zhiliang Zhang, Recent Advances on Hydrogen Embrittlement Understanding and Future Research Framework

**ESIS Support for researchers:** <http://www.structuralintegrity.eu/site/pdf/ecf22/ESIS%20Support%20for%20Researchers%20Announcement.pdf>

**ESIS AWARDS:** <http://www.structuralintegrity.eu/site/pdf/ecf22/ESIS%20AWARDS%20-%20CALL%20FOR%20PROPOSALS.pdf>

**ESIS Elsevier young scientist award:** <http://www.structuralintegrity.eu/site/pdf/ecf22/ESISELSEVIER%20YOUNG%20SCIENTIST%20AWARD.pdf>

**Best paper in weldment fracture mechanics:**

<http://www.structuralintegrity.eu/site/pdf/ecf22/AWARD%20%20for%20the%20best%20paper%20on%20WFM%20Galip.pdf>

## Preliminary Timetable

Time	Monday, 27.8	Tuesday, 28.8	Wednesday, 29.8	Thursday, 30.8	Friday, 31.8			
08:00	<b>Registration</b>	<b>Registration</b>						
08:30		<b>Plenary session – Youshi Hong Uwe Zerbst</b>	<b>Plenary session Robert Ritchie Yonggang Huang</b>	<b>Plenary session Takayuki Kitamura William Curtin</b>	<b>Parallel sessions</b>			
09:00	<b>OPENING CEREMONY</b>							
10:15	<b>Honorary lecture James Rice</b>							
10:30		<b>Coffee Break</b>	<b>Coffee Break</b>	<b>Coffee Break</b>				
11:00	<b>Parallel sessions</b>	<b>Parallel sessions</b>	<b>Parallel sessions</b>	<b>Parallel sessions</b>	<b>Coffee Break</b>			
11:30								<b>Plenary session Two medals</b>
12:00								
13:00								
13:30	<b>Lunch Break</b>	<b>Lunch Break</b>	<b>Lunch Break</b>	<b>Lunch Break</b>	<b>CLOSING CEREMONY</b>			
14:00								
14:30	<b>Plenary session Jovo Jaric</b>	<b>Plenary session Drazan Kozak &amp; Nenad Gubeljak</b>	<b>Special session for young scientists best paper 75 minutes</b>	<b>Plenary session Meinhard Kuna</b>				
15:00								
15:45	<b>Coffee Break</b>	<b>Coffee Break</b>		<b>Coffee break</b>				
16:00	<b>Parallel sessions <u>ExCo meeting</u></b>	<b>Parallel sessions <u>Technical Committees</u></b>		<b>Sightseeing</b>		<b>Parallel sessions</b>		
17:00								
18:00								
18:30								
19:00	<b>Cultural Programme</b>	<b>Belgrade visit by boat</b>	Technical visits	<b>Conference dinner</b>				
19:30			<b><u>ESIS council</u></b>					
20:00								
21:00								
22:00								

### Important dates

**Submission of Abstracts:** 31.1.2018  
**Notification of Acceptance:** 15.2.2018  
**Deadline for early Registration:** 20.2.2018  
**Submission of Papers:** 30.4.2018  
**Deadline for Registration:** 20.6.2018

**Registration on-site is also possible!**

### **Local Organizing Committee**

- Aleksandar Sedmak, the chairman, [asedmak@mas.bg.ac.rs](mailto:asedmak@mas.bg.ac.rs)
- Zoran Radaković, co-chairman
- Snežana Kirin, co-chairman
- Miloš Milošević, co-chairman
- Marko Rakin
- Ljubica Milović
- Milica Tošić
- Branislav Đorđević
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- Nenad Radović
- Katarina Čolić

### **International Advisory Board**

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Drazan Kozak	John Landes	Per Stahle	Takayuki Kitamura	

**SUMMER SCHOOL:** Two-day event is offered to young researchers, with world's leading experts in the field.

**5<sup>th</sup> Fracture mechanics Summer School – Belgrade, Serbia, 25-26<sup>th</sup> August 2018**

<b>25.8.2018, Saturday</b>		
9:00-10:45 FME, room 211	<b>Basics of experimental fracture mechanics, linear elastic and elastic-plastic crack growth</b>	<b>John Landes, USA</b>
10:45-11:00 FME, 210	Coffee break	
11:00-12:45 FME, room 211	<b>Basics of experimental fracture mechanics, fatigue crack growth</b>	<b>Francesco Iacoviello, Italy</b>
12:45-14:00, FME, restaurant	Lunch, transfer to the Laboratory	
14:00-17:00 MTI, Zarkovo	<b>Experimental work at the Laboratory</b>	<b>John Landes, Francesco Iacoviello Blagoj Petrovski, Zijah Burzic</b>
<b>26.8.2018, Sunday</b>		
9:00-11:00 FME, room 211	<b>Deformation and fracture of polymers and composites</b>	<b>Bamber Blackman, UK</b>
11:00-11.30 FME, 210	Coffee break	
11:30-12:45 FME, room 211	<b>Interface fracture mechanics</b>	<b>Leslie Banks-Sills, Israel</b>
12:45-13:45, FME, restaurant	Lunch	
13:45-15:00 FME, room 211	<b>Interface fracture mechanics</b>	<b>Leslie Banks-Sills, Israel</b>
15:00-15:30 FME, 210	Coffee break	
15:30-17:00 FME, amphitheater A	<b>J integral - on the occasion of the 50<sup>th</sup> anniversary Open for all participants</b>	<b>James Rice, USA</b>

FME – Faculty of Mechanical Engineering; Kraljice Marije 16, Belgrade

MTI - Military-Technical Institute, Ratka Ristanovica 1, Zarkovo, Belgrade

Fee (**125 € before 20.6.2018, 150 € afterwards**) includes lectures, refreshments and buffet lunch.



## Social Program

Welcome Reception will be held on Sunday, August 26<sup>th</sup> evening from 19:00 to 22:00, Faculty of Mechanical Engineering, Kraljice Marije 16, Belgrade

Cultural programme will be organized on Monday evening, August 27<sup>th</sup>, from 19:00 to 22:00.

Belgrade visit by boat will be organized on Tuesday evening, August 28<sup>th</sup>, from 19:00 to 22:00.

Conference Dinner, including cultural programme, will be served on Thursday evening.

There will be different one-days excursions every day from Monday till Friday, covering the most important historical and cultural sites in Serbia (Vinča archeological site (5500 BC), Viminacium, once the capital of the Roman province Mesia Superior, Lepenski Vir, archeological site (7500 BC),

Fruska Gora monasteries and wineries, Novi Sad, Petrovaradin and Sremski Karlovci, monasteries in central Serbia (Manasija, Resava, Studenica, Zica)

Post conference tours (one or two day) will also be offered.



Monastery Studenica



Figurine - Vincha "Foremother" Lepenski Vir



Sremski Karlovci



Petrovaradin fortress

## Recommended hotels and privileged prices for conference participants

Hotel		Single room	Double room	Website
1.	Metropol Palace a Luxury Collection Hotel	95 €	110 €	<a href="http://www.metropolpalace.com">http://www.metropolpalace.com</a>
2.	Hotel Zira	85 €	95 €	<a href="http://www.zirahotels.com">http://www.zirahotels.com</a>
3.	OTEL CONSTANTINE THE GREAT BELGRADE	80 €	85 €	<a href="http://www.constantinethegreatbelgrade.com">www.constantinethegreatbelgrade.com</a>
4.	Holiday Inn Express Belgrade	59 €	64 €	<a href="http://www.holidayinnexpress.com/belgrade">www.holidayinnexpress.com/belgrade</a>
5.	Boutique Hotel Tash	30 €	40 €	<a href="http://www.hoteltash.com">www.hoteltash.com</a>

For more details visit [www.ecf22.rs](http://www.ecf22.rs) or send an email to [ecf22conference@gmail.com](mailto:ecf22conference@gmail.com)

