

**History and Perspectives** – Starting 25 years ago, in 1980, International Fracture Mechanics Summer Schools (IFMASS) had been organized eight times, the last one in 2003. Topical monograph was published in Serbian after first seven Schools under the School title, e.g. "Fracture Mechanics of Weldments" (IFMASS 3), "The Application of Fracture Mechanics to Life Estimation of Power Plant Components" (IFMASS 5), published also in English by EMAS. The IFMASS 8 monograph "From Fracture Mechanics to Structural Integrity Assessment" has been published in English. It is available at web site [www.divk.org.yu](http://www.divk.org.yu)

The number of participants was from 62 in the first School, up to 145 in IFMASS 5, and 107 in IFMASS 8. The IFMASS lecturers staff included more than 70 well known world experts, e.g.: P. Albrecht, M. Burdekin, D. Francois, H. Hoffmeister, I. Hrivnak, V. Ivanova, J. Landes, J. Joyce, H. Mac Henry, A. Mazur, G. Pluinage, J. Radon, M. Ratwani, D. Read, K. H. Schwalbe, T. Siewert, R. Stephens, V. Troshchenko, M. Wnuk, including many lecturers from former Yugoslavia.

Two basic reasons to organize the Ninth International Fracture Mechanics Summer School (IFMASS 9) are:

- After successful IFMASS 8, organized by DIVK in 2003 in Belgrade (Serbia) with 25 presented lectures and participants from Serbia & Montenegro, Bulgaria, Romania, Poland, Bosnia & Herzegovina, Macedonia, Slovenia, Croatia, Turkey and Albania, the extension of the School in other countries of South-East Europe (SEE) will enable regular and fruitful gathering of the experts in Structural Integrity of this region.
- In the SEE extended region, the annual organisation of IFMASS could attract significant number of **new young participants** and enable regional cooperation, these days strongly supported by the European Union.

New development during IFMASS had been considered by **WORKSHOP**. This time, Workshop in IFMASS 9

## **New Trends in Fracture Mechanics Applications**

includes nanomaterials, numerical analysis and welded structures, moderated by A. Shelev, H. Walter, G. Pluinage, and A. Sedmak.

## **IFMASS 9 Program**

Lecture	Lecturer
<b>A. Fundamentals</b>	
1	Crack problems in structures (Sedmak)
2	Basic of damage mechanics (Šumarac)
3	Mathematical modeling of mixed mode fracture in advanced aerospace materials (M. Wnuk)
4	Advanced structural steels (N. Radović)
5	Micromechanical analysis in structural integrity assessment (M. Burdekin)

## A. Sedmak

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| 6 | Energy analysis of $\Delta K$ and $\Delta W$ by Angelova - data presentations                                      |
| 7 | Fracture mechanics safety analysis in nuclear industry: from material properties to the equivalent stress gradient |
| 8 | Failure criteria based on the equivalent stress gradient   |

## B. Experiments and testing

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| 9  | Residual stresses induced by welding                        |
| 10 | Crack problems in welded joints                             |
| 11 | Significance of mechanical testing for structural integrity |

## Z. Burzić

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| 12 | Testing for detection and location of cracks              |
| 13 | Materials characterization and testing of soldered joints |

## H. Walter

## C. Service problems

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| 14 | Identification of damage in building structures using dynamical method |
| 15 | Failure at elevated temperature  |
| 16 | Behaviour of welded structures at high temperature                     |

## B. Petrovski

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| 17 | Investigations on composite materials - applications for reinforcement of steel |
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## K. Hadjov

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| 18 | Stress intensity factors and their measurement by strain gauges and photoelasticity |
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## D. Structural integrity assessment

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| 19 | Failure and damage in pipes   |
| 20 | Numerical analysis of welded structures for structural integrity assessment |

## T. Manevski

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|----|--|
| 21 | Fracture mechanics for the "fitness for purpose" evaluation of weldments |
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## N. Lolov

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| 22 | Thermoelastic methodology for structural integrity assessment                          |
| 23 | Limit load calculation model for ductile failure of defective pipe and pressure vessel |
| 24 | Structural integrity assessment procedures and their application                       |

**Lecturers and Schedule** – The lecturers from **Serbia** are mostly in the lists of experienced lecturers from former IFMASS's: Prof. Dr. Katarina Gerić, Dr. Vencislav Grabulov, Dr. Miodrag Kirić, Prof. Dr. Taško Manevski. Prof. Dr. Nenad Radović, Dr. Marko Rakin, Prof. Dr. Aleksandar Sedmak, Prof. Dr. Stojan Sedmak, Prof. Dr. Vera Šijački Žeravčić, Prof. Dr. Dragoslav Šumarac, Dr. Milorad Zrilić

The names in the lecturers list from **Bulgaria** are well known in materials science, welding and fracture mechanics: Prof. Dr. Donka Angelova, Prof. Dr. Angel Baltov, Dr. D. Dontchev, Prof. Dr. Kliment Hadjov, Prof. Dr. Nikolay Lolov, Prof. Dr. Aleksandar Schelev, Prof. Dr. Stefan Vodenicharov.

The list of lecturers is completed by invited experts in the field from **France**: Prof. Dr. Guy Pluvinaige;

**y** Dr. Bilal Dogan, Prof. Dr. Blagoj Petrovski, Prof. Dr. Bernd Michel, Dr. Hans Walter;

**German**  
: Prof.

## Romania

: Dr. Liviu Marşavina, Prof. Dr. D. Constantinescu;

## Ukraine

: Dr. I. Orynyak;

## Macedonia

: G. Adžiev

## IFMASS9 Schedule

Monday 19.9.	Tuesday	Wednesday 20.9.	Thursday	Friday 21.9.	22.9.
8.30-10	Registration		C14 & A8	B11 & B12	
10	Opening		Coffee	Coffee	
10.30-12	A7 & A3		A4 & A5	B9 & B10	
12	Coffee		Lunch	Lunch	
12.15-13	A1		B13	D21 & D24	
13-16	Lunch		Lunch	Bulgarian	
16-17.30	D19 & A6		workshop	side initia-	
17.30	Coffee		tive for pa-	Coffee	
18-18.45	workshop		rticipants	workshop	

19.30

Gala Dinner

IFMASS 9 will be held in Zlatni Piasci (Golden Sand) at the Black Sea coast, 20 km from Varna, the third biggest city in Bulgaria.

Varna is 470 km from Sofia and 530 km from the border with Serbia. Good communication by air (international airport), rail road (daily trains Belgrade – Varna) and road, (daily bus Belgrade – Varna). Participants also can use very convenient arrangement offered by ARGUS TOURS, Belgrade, Balkanska 51, tel. +381 11 361 76 60

#### Accommodation

For participants from Serbia the arrangement from 16th to 27th September is available with ARGUS TOURS. The arrangement in Astoria Beach Hotel (\*\*\*\*) includes 9 overnights in double bedroom, from 17th to 25th September, at the price of 115 € and bus transfer Belgrade – Hotel in Golden Sand and back for 3.999,00 dinars (about 50 €). The other participants can also use the accommodation and meals at the same price by ARGUS TOURS or by its Bulgarian partner AQUAMARINE HOLDING-BULGARIAN VIP TOURS. We would be happy to assist you in finding suitable hotel accommodation.

#### Registration

Registration fee is 80 Euro, for DIVK members 60 Euro and 40 for young researchers. The registration fee can be paid at the reception desk of the Conference on the opening day.

#### Contacts

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#### Organizers:

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