

## GODIŠNJA KONFERENCIJA DRUŠTVA ZA INTEGRITET I VEK KONSTRUKCIJA (DIVK)

Održana 13–15. oktobra 2004. u Institutu za ispitivanje materijala (IMS), Beograd

Društvo za integritet i vek konstrukcija (DIVK), osnovano 6. marta 2001, ove godine je organizovalo **Prvu godišnju konferenciju DIVK**. Upravni odbor je imao nameru da otvori forum za članove DIVK, koji bi razmatrao probleme u vezi sa ponašanjem konstrukcija u eksploataciji, kao i integritetom i vekom konstrukcija, u okviru skoro osnovanog Društva, ali takođe i da omogući drugim stručnjacima u ovom polju da predstave svoja dostignuća. Prateći organizacionu šemu komisija unutar Evropskog udruženja za integritet i vek konstrukcija (ESIS), naše Društvo je organizovano u devet sekcija, koje su manje-više aktivne. Do sada su organizovane tri Godišnje skupštine DIVK, gde su predstavljeni pojedinačni doprinosi, a i prošireni izveštaji Upravnog odbora. Zatim je usledilo izdavanje monografija i brojeva naučnog i stručnog časopisa *Integritet i vek konstrukcija*. U međuvremenu, DIVK je preselio svoju kancelariju na novu lokaciju, u Institutu za ispitivanje materijala, Beograd, Bulevar vojvode Mišića 43, soba 258, tel. (+381)-11-2650322, lokal 202.

Pored sve aktivnosti unutar DIVK, ukazala se potreba za dodatnom godišnjom plenarnom sednicom članova. Rešenje je bilo u organizovanju Godišnje konferencije DIVK.

**Prva godišnja konferencija DIVK** je trajala tri dana i privukla je 92 učesnika iz Srbije (od kojih je 71 članova DIVK) i 11 stranih učesnika (po 2 iz Francuske, Rumunije, i Slovenije, 4 iz Bosne i Hercegovine, i 1 iz Slovačke). Konferencija se sastojala iz tri dela: (1) prezentacije radova; (2) seminara i (3) plenarne diskusije o Preporukama DIVK za ispitivanje probnim vodenim pritiskom opreme pod pritiskom u eksploataciji.

## ANNUAL CONFERENCE OF THE SOCIETY FOR STRUCTURAL INTEGRITY AND LIFE (DIVK)

Held on 13–15 October 2004 at the Institute for Materials Testing (IMS), Belgrade

The Society for Structural Integrity and Life (DIVK), established March 6<sup>th</sup> 2001, has had its **First DIVK Annual Conference** this year. The Governing Board intended to open the forum for DIVK members that would consider problems connected with the behaviour of structures in service, structural integrity and life in the frame of the recently established Society, but also to enable other experts in the field to present their achievements. Following the organising scheme of committees in European Structural Integrity Society (ESIS), DIVK is organised in nine sections that are more or less active. Three Annual Conferences had been organised so far, where individual contributions had been presented and extended Governing Board reports were submitted. Monographs and issues of the scientific journal *Structural Integrity and Life* were also published afterwards. Meanwhile, the DIVK office has moved from GOŠA Institute to the new location at the Institute for Material Testing, Belgrade, Bulevar vojvode Mišića 43, room 258, phone (+381)-11-2650322 ext. 202.

In spite of DIVK activity, a need for one additional annual plenary meeting of members was recognized. The solution was found in the DIVK Annual Conference.

The **First DIVK Annual Conference** was a three day event, attracting 92 participants from Serbia (71 members of DIVK) and 11 foreign participants (2 from France, Romania, and Slovenia, 4 from Bosnia and Herzegovina and 1 from Slovakia). The Conference consisted of: (1) paper presentations; (2) seminar, and (3) plenary discussion about DIVK Recommendation for water pressure proof testing of pressurized equipment in exploitation.



Predsednik DIVK Stojan Sedmak i sekretar Godišnje konferencije Ljubica Milović sa gostima iz Francuske, Gijom Plivinažom i Filipom Žodenom (levo). Prezentacija Profesora Plivinaža (desno) DIVK president Stojan Sedmak and secretary of the Annual Conference Ljubica Milović together with guests from France, Guy Pluvinage and Philippe Jodin (left). Presentation of Professor Pluvinage (right).



Deo učesnika Godišnje konferencije DIVK  
Part of the participants of the DIVK conference.

(1) Lista autora i radova(1) List of authors and presented papers

1. G. Pluvinage (France)  
*Design of nuclear waste container under dynamic loading*
2. P. Jodin, (France)  
*Design of timber structures and Eurocode 5*
3. V. Gliha, T. Vuherer (Slovenia), M. Zrilić, Z. Burzić (Serbia)  
*The effect of small defects on fatigue strength of butt welded joints*
4. M. Behmen, M. Bugarin, M. Torlo, A. Mustapić, S. Isić (Bosnia & Herzegovina)  
*Contribution to development of residual welding stress relaxation in complex metal structures*
5. T. Vuherer, V. Gliha (Slovenia), P. Yasniy, V. Hutsaylyuk, H. Nykyforchyn (Ukraine)  
*The effect of small defects on fatigue strength of coarse grain heat-affected-zone*
6. A. Fertilio, T. Janković, I. Kovačević, D. Salamić (Serbia)  
*Damage repair for re-establishing reactor integrity and extension of its service life*
7. B. Sladojević, M. Tonic, Z. Marković (Serbia)  
*Quality analysis of rail welded joint*
8. S. Sedmak (Serbia)  
*The significance of material toughness in heat-affected-zone for welded structural integrity assessment*
9. M. Arsić, V. Aleksić, N. Hut (Serbia)  
*State analysis and structural integrity assessment of boilers*
10. D. Mijuca (Serbia)  
*The analysis of temperatures and stresses in rotating furnace mantle*
11. M. Ognjanović (Serbia)  
*Complex damage of surface layer of gear denture*
12. D. Karišić, Ž. Štrbački (Serbia)  
*C-scan, presentation of results obtained by ultrasonic testing*
13. A. Sedmak, R. Uzunović, M. Perović (Serbia & Montenegro)  
*Standardization, accreditation, technical codes*
14. L. Marsavina (Romania), R. A. Tomlinson (UK)  
*The use of infra-red detectors for fatigue life assessment*
15. D. Cvetković, D. Šumarac (Serbia)  
*The possibility of application of fracture energy for determination of concrete resistance to explosion*
16. M. Pavišić (Serbia)  
*Concrete structural integrity assessment based on accepted risk*
17. N. Radović, Đ. Drobnjak (Serbia)  
*Optimization of chemical content and thermomechanical regime in steel production for structural integrity improvement*
18. M. Georgijević (Serbia)  
*The effect of manipulation on machine life—examples for transport equipment*
19. D. Momčilović (Serbia)  
*Influencing factors in impact energy testing by Charpy method*
20. I. Živković, S. Maksimović, R. Aleksić (Serbia)  
*Numerical and experimental analysis of failure initiation in composite laminates with built-in fiberoptical sensors*
21. Lj. Brajović, P. Uskoković, Z. Mišković, S. Putić, R. Aleksić, M. Simić (Serbia)  
*The use of built-in fiberoptical sensors for damage detection in uniaxial composite materials*
22. I. Živković, Lj. Brajović, A. Kojović, P. Uskoković, R. Aleksić (Serbia)  
*Part one - punching*
23. I. Živković, M. Tomić, Lj. Brajović, A. Kojović, S. Milinković, R. Aleksić (Serbia)  
*Part two-ballistic shock*
24. A. Kojović, I. Živković, Lj. Brajović, D. Mitraković, R. Aleksić (Serbia)  
*Part three - low energy impact*

(2) Seminar: “Uloga ispitivanja bez razaranja u proceni integriteta i veka konstrukcija”(2) Seminar: “The role of non-destructive testing in the assessment of structural integrity and life”

1. J. Kurai, *Non-destructive testing and its application in industry*
2. B. Aleksić, A. Bredan, J. Kurai, *Non-destructive testing and structural integrity—typical examples and practical experience*
3. M. Zrilić, *Residual stresses and significance of its measurement in structural integrity assessment*
4. Z. Burzić, *Acoustic emission – an active non-destructive method in structural integrity assessment*

(3) Preporuke DIVK za ispitivanje probnim vodenim pritiskom opreme pod pritiskom u eksploataciji

Uvodno predavanje je imao M. Arsić u ime autora koji su učestvovali u pripremi Preporuka.

Apstrakti sa Konferencije (neki su i prošireni) sa adresama autora mogu se videti na internetu:

[www.divk.org.yu](http://www.divk.org.yu)

Adresa za kontakte je [konferencija@divk.org.yu](mailto:konferencija@divk.org.yu)

**11. MEĐUNARODNA KONFERENCIJA O LOMU (ICF XI) – Torino (Italija), 20–25. marta, 2005**

Međunarodnu konferenciju o lomu (ICF) osnovao je profesor T. Yokobori 1965. god. i danas predstavlja premijerno međunarodno telo za promociju svetske saradnje naučnika i inženjera koji se bave mehanikom i mehanizmima loma, zamorom i čvrstoćom čvrstih tela. Tokom godina, ICF je značajno napredovala u pružanju jednog međunarodnog foruma za prikaz pojedinačnih i nacionalnih dostignuća u opštim poljima Mehanike loma, Čvrstoće materijala i Integriteta konstrukcija.

Kandidatura Torina podržana je jakim naučnim programom i sa idejom u podsticanju učešća mladih naučnika i inženjera. Osim

(3) DIVK Recommendation for water pressure proof test of pressurized equipment in exploitation.

Introductory presentation given by M. Arsić in the name of authors who participated in the preparation of Recommendation.

Abstracts of the Conference (some are extended) with affiliation of authors can be found on the web site:

[www.divk.org.yu](http://www.divk.org.yu)

The contact address is [konferencija@divk.org.yu](mailto:konferencija@divk.org.yu)

**11<sup>TH</sup> INTERNATIONAL CONFERENCE ON FRACTURE (ICF XI) – Turin (Italy), March 20–25, 2005**

Founded by Professor T. Yokobori in 1965, the International Congress on Fracture (ICF) is today the premier international body for promoting worldwide cooperation among scientists and engineers dealing with mechanics and mechanisms of fracture, fatigue and strength of solids. Over the years, ICF made considerable progress in providing an international forum for highlighting individual and national accomplishments in general fields of Fracture Mechanics, Material Strength and Structural Integrity.

The Turin candidature has been endorsed by a strong scientific programme and incentives to encourage the participation of young

tradicionalnih tema, program obuhvata nova i interesantna dostignuća kao što su zakoni skaliranja, nanomehanika, pametni materijali, biomehanika, geofizika i tektonika, izdržljivost infrastruktura, oštećenje i obnova istorijskih i monumentalnih zgrada. Preko 160 poznatih naučnika daće svoj doprinos i podršku Specijalnim sesijama i Mini simpozijumima.

Konferencija se organizuje pod visokim patronatom predsednika Republike Italije, pod okriljem Ministarstva infrastruktura i transporta italijanske vlade i italijanske Nacionalna fondacije za nauku (CNR), sa naučnom podrškom i sponzorstvom vodećih svetskih institucija na polju Loma, Zamora, Čvrstoće materijala i Integriteta konstrukcija, kao što su Međunarodni kongres loma (ICF), Evropsko društvo za integritet konstrukcija (ESIS), Američko društvo za ispitivanje i materijale (ASTM), dok su Italijanska grupa za lom (IGF), Politecnico di Torino i Torinska akademija nauka domaćinske organizacije.

Tokom konferencije održaće se Počasna, Plenarna i *Key-note* predavanja zajedno sa usmenim prezentacijama učesnika. Poster prezentacije nisu dozvoljene.

Teme konferencije su sledeće:

Aeronautika i kosmotehnika, Analitički modeli, Biomehanika, Keramika, Kompoziti, Računska mehanika, Beton i kamen, Korozija, Mehanika oštećenja, Brane, Razdvajanje veza, Bušenje, sečenje, testerisanje, Trajnost, Elektronski materijali, Analiza loma, Zamor, Funkcionalna podela materijala, Geofizika i tektonika, Staklo, Povišena temperatura i puzanje, Istorijske i monumentalne zgrade, Vodonična krstost, Udar i dinamika, Industrijska i arhitektonska izdržljivost, Inverzni problemi, MEMS, Metalni materijali, Mikro ili mezo-skala, Kombinovani mod, Nano- ili mikro-skala, Ispitivanja bez razaranja i praćenje, Nelinearna mehanika loma, Proizvodnja i distribucija nafte i gasa, Fizički aspekti, Starenje elektrana, Polimeri, Železnica, Ojačani beton, Pouzdanost, Zakoni skaliranja i efekti dimenzija, Pametni materijali i konstrukcije, Površinske obrade, Tanki filmovi, Zavareni spojevi, Drvo.

Rok za slanje apstrakata bio je 31. maj 2004.

Zbornik će biti sastavljen iz apstrakata vezanih za pojedinačne prezentacije. Prošireni apstrakti biće izdati na CR-ROM-u, a kratki apstrakti na posebnom odštampanom tomu. Usvojena polisa konferencije dozvoljava jednu prezentaciju po jednom registrovanom učesniku. Svako od više prihvaćenih apstrakata će predavati neki drugi koautor.

Ključni rokovi:

- prihvatanje radova, 31. oktobar 2004.
- ranija registracija, 30. novembar 2004.
- kasna registracija, 11. mart 2005.
- hotelska rezervacija, 31. januar 2005.

Više informacija ima na: [www.icf11.com](http://www.icf11.com)

Sekretarijat organizacije ICF11, tel. (+39) 011 2446911, e-mail: [icf11@congressiefiere.com](mailto:icf11@congressiefiere.com)

## 16. EVROPSKA KONFERENCIJA O LOMU (ECF16)

**Analiza otkaza nano i inženjerskih materijala i konstrukcija, Aleksandropolis, Grčka, 3–7. jula 2006**

Započeta 1976, Evropska konferencija o lomu (ECF) danas je glavna aktivnost Evropskog društva za integritet konstrukcija (ESIS) u promovisanju svetske saradnje naučnika i inženjera koji se bave lomom i zamorom čvrstih tela. Konferencija zaseda svake druge godine u jednoj evropskoj zemlji.

ECF16 se organizuje pod okriljem Evropskog društva za integritet i vek konstrukcija, a sponzorisana je od strane Američkog društva za ispitivanje i materijale, Društva eksperimentalne mehanike SAD, Britanskog društva za merenje deformacija, Japanskog društva za nauku o materijalima i Japanskog društva za eksperimentalnu mehaniku.

scientists and engineers. Besides traditional topics, the programme covers exciting and new developments such as scaling laws, nanomechanics, smart materials, biomechanics, geophysics and tectonics, infrastructure durability, damage and restoration of historical and monumental buildings. Over 160 well-known scientists will support and contribute to the Special Sessions and Mini-Symposia.

The Conference is organized under the High Patronage of the President of the Republic of Italy, under auspices of the Ministry of Infrastructures and Transportation of the Italian Government, and National Science Foundation of Italy (CNR), with scientific support and sponsorship of worldwide leading Institutions in fields of Fracture, Fatigue, Material Strength and Structural Integrity, like the International Congress on Fracture (ICF), European Structural Integrity Society (ESIS), American Society for Testing and Materials (ASTM), while Italian Group of Fracture (IGF), Politecnico di Torino and Turin Academy of Sciences are hosts.

The Conference will include Honour, Plenary, and Key-note Lectures together with contributed oral presentations. Poster presentations are not allowed.

The topics covered are:

Aeronautics & Aerospace, Analytical Models, Biomechanics, Ceramics, Composites, Computational Mechanics, Concrete & Rocks, Corrosion, Damage Mechanics, Dams, Debonding, Drilling, Cutting and Sawing, Durability, Electronic Materials, Failure Analysis, Fatigue, Functionally Graded Materials, Geophysics and Tectonics, Glass, High Temperature & Creep, Historical and Monumental Buildings, Hydrogen Embrittlement, Impact & Dynamics, Industrial and Architectural Sustainability, Inverse Problems, MEMS, Metallic Materials, Micro- or Meso-scale, Mixed Mode, Nano- or Micro-scale, Nondestructive Examination & Monitoring, Nonlinear Fracture Mechanics, Oil & Gas Production and Distribution, Physical Aspects, Plant Aging, Polymers, Railways, Reinforced Concrete, Reliability, Scaling Laws & Size Effects, Smart Materials & Structures, Surface Treatments, Thin Films, Welds, Wood.

The abstract submission deadline was May 31<sup>st</sup>, 2004.

Proceedings will consist of abstracts related to single presentations. Extended Abstracts will be published on CD-ROM and Short Abstracts on a separate printed volume. The Conference has adopted a policy of only one oral presentation per registered participant. Each of the multiple submitted abstracts will be presented by a different co-author.

Key deadlines:

- notification of Acceptance, October 31, 2004
- early registration, November 30, 2004
- late registration, March 11, 2005
- hotel reservation, January 31, 2005.

For more information please visit: [www.icf11.com](http://www.icf11.com)

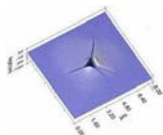
The ICF11 Organizing Secretariat, phone (+39) 011 2446911, e-mail: [icf11@congressiefiere.com](mailto:icf11@congressiefiere.com)

## 16<sup>TH</sup> EUROPEAN CONFERENCE OF FRACTURE (ECF16)

**Failure Analysis of Nano and Engineering Materials and Structures, Alexandroupolis, Greece, July 3-7, 2006**

Started in 1976, the European Conference of Fracture (ECF) is today the premier activity of the European Structural Integrity Society (ESIS) to promote world-wide cooperation among scientists and engineers concerned with fracture and fatigue of solids. It takes place every two years in a European country.

ECF16 is organized under the auspices of the European Structural Integrity Society and is sponsored by the American Society of Testing and Materials, the Society of Experimental Mechanics of USA, the British Society for Strain Measurement, the Japanese Society of Materials Science and the Japanese Society for Experimental Mechanics.



ECF16 će fokusirati na sve aspekte integriteta konstrukcija sa ciljem u poboljšanju sigurnosti i rada inženjerskih konstrukcija, komponenata, sistema i primenjenih materijala. ECF16 će imati dve grupe sekcija, posvećenih analizi loma inženjerskih materijala i konstrukcija, kao i nanomaterijala i nanokonstrukcija. Ističu se mikro- i nanoelektromehanički sistemi (MEMS i NEMS). Tehnički program ECF16 je proizvod napora i zalaganja više od 160 svetski poznatih eksperata. ECF16 će se sastojati u predavanja po pozivu eminentnih akademaca sa obe strane Atlantika, uz doprinos oralnih i poster prezentacija, koje pokrivaju sve aspekte loma i zamora. Tokom konferencije, specijalni simpozijum će obuhvatiti glavne oblasti istraživanja, a organizuju ga članovi Naučnog odbora, a takođe i simpozijum "Merenje, praćenje i modeliranje osobina betona", u čast Prof. S.P. Šaha sa *Northwestern University, SAD*.

ECF16 će biti forum interakcije i razmene ideja univerziteta, industrija i vlada, u oblastima veoma bitnim za nauku i tehnologiju. Konferencija će se odvijati na engleskom jeziku.

### Grupe konferencije

#### Grupa 1: Nanomaterijali i nanokonstrukcije

Lom i zamor nanostrukturnih materijala, Mehanizmi loma, Nutiskivanje radi loma nanostrukturnih materijala, Zamor i lom MEMS i NEMS, Modovi loma i analiza loma nanokonstrukcija, Zamor i lom na atomskom i molekularnom nivou, Tanki slojevi, Elektronski materijali, Lom nanokompozita.

#### Grupa 2: Inženjerski materijali i konstrukcije

Fizički aspekti loma, Krti lom, Duktilan lom, Nelinearna mehanika loma, Zamor i lom, Lom na povišenim temperaturama, Trošenje zamorom, Polimeri i kompoziti, Keramika, Led, Analiza mehanike loma, Tehnologije površinske obrade, Statistički prilazi u mehanici loma, Računska mehanika loma, Eksperimentalna mehanika loma, Lom puzanjem, Lom pod uticajem sredine, Dinamički - brzim deformisanjem ili lom udarom, Mehanika oštećenja, Uticaji zaostalih napona, Beton i kamen, Sendvič konstrukcije, Nova ispitivanja i metode procene, NDT, Lom u kombinovanom modu, Integritet konstrukcija, Uticaji razmere i dimenzija, Mehanika mezoloma, Pametni materijali i konstrukcije, Lom bioloških materijala, Geofizički i tektonski problemi, Mikromehanizmi loma i zamora.

### Važni datumi

Podnošenje apstrakata, 31. mart 2005.

Obaveštenje o prihvatanju/odbijanju, 31. maj 2005.

Podnošenje celog rada, 30. oktobar 2005.

Obaveštenje o prihvatanju/odbijanju, 15. decembar 2005.

Registracija, 15. januar 2006.

Cena registracije	Ranije	Kasnije
Učesnik	550 EUR	700 EUR
Student	350	500
Osoba u pratnji	100	150

### Posebni simpozijumi:

**Lom i zamor u mikro i nano razmeri**, u organizaciji H.D. Espinosa i Isaka Danijela, *Northwestern University, SAD*.

Svrha ove sekcije je u interakciji i povezivanju svih koji su zaposleni na univerzitetima, u industrijama i državnim laboratorijama na opštem polju mikro i nano sistema, kao i omogućavanje razmene ideja i interdisciplinarnog foruma.

Polje nano nauke i tehnologije je široko i interdisciplinarno. Istraživanja i razvoj u svetu raste veoma brzo u proteklih nekoliko godina, a razumevanje raspona i prirode funkcionalnosti koje se mogu doseći nanostrukturama tek počinje.

Razumevanje i sprečavanje loma i zamora u mikro i nano inženjerskim primenama zavisi od integracije znanja u nauci o materijalima, fizici, hemiji i mehanici. Ovaj napredak će značajno izmeniti način izrade materijala i uređaja, a izazvaće revoluciju u nekim segmentima industrije i proizvodnje materijala.

ECF16 will focus in all aspects of structural integrity with the objective of improving safety and performance of engineering structures, components, systems and their associated materials. It will include two tracks devoted to failure analysis of engineering materials and structures, nanomaterials and nanostructures. Emphasis will be given to micro- and nanoelectromechanical systems (MEMS and NEMS). ECF16 technical programme is the product of hard work and devotion of more than 160 world leading experts. It will comprise of invited lectures by eminent academics from both sides of the Atlantic with oral and poster presentations, covering all aspects of fracture and fatigue. Special symposia in major areas of research, organized by Scientific Advisory Board will take place including "Measuring, Monitoring and Modelling Concrete Properties" in honour of Prof. S.P. Shah of Northwestern University, USA.

ECF16 will be a forum of university, industry and government interaction and exchange of ideas in areas of utmost scientific and technological importance. The conference will be in English.

### Conference Tracks

#### Track 1: Nanomaterials and Nanostructures

Fracture and fatigue of nanostructured materials, Failure mechanisms, Nanoindentation for fracture of nanostructured materials, Fatigue and fracture of MEMS and NEMS, Failure modes and failure analysis of nanodevices, Fatigue and fracture at atomistic and molecular scales, Thin films, Electronic materials, Failure of nanocomposites.

#### Track 2: Engineering Materials and Structures

Physical aspects of fracture, Brittle fracture, Ductile fracture, Non-linear fracture mechanics, Fatigue and fracture, High temperature fracture, Fretting fatigue, Polymers and composites, Ceramics, Ice, Fracture mechanics analysis, Surface treatment technologies, Probabilistic approaches to fracture mechanics, Computational fracture mechanics, Experimental fracture mechanics, Creep fracture, Environment assisted fracture, Dynamic - high strain rate or impact fracture, Damage mechanics, Residual stress effects, Concrete and rock, Sandwich structures, Novel testing and evaluation techniques, NDE, Mixed-mode fracture, Structural integrity, Scaling and size effects, Mesofracture mechanics, Smart materials and structures, Fracture of biological materials, Geophysical and tectonic problems, Micromechanisms in fracture and fatigue.

### Key Dates

Submission of Abstracts, March 31, 2005

Notification of Acceptance/Rejection May 31, 2005

Submission of Complete Paper, October 30, 2005

Notification of Acceptance/Rejection, December 15, 2005

Registration, January 15, 2006

Registration fees	Early	Late
Participant	550 EUR	700 EUR
Student	350	500
Accompanying person	100	150

### Special Symposia:

**Fracture and Fatigue at the Micro and Nano scales**, organized by H.D. Espinosa and Isaac Daniel, Northwestern University, USA.

This session will foster interaction and networking of those working throughout universities, industries, and government laboratories in the general area of micro and nano systems, and provide an opportunity to exchange ideas in an interdisciplinary forum.

Nano science and technology is a broad and interdisciplinary field. Worldwide research and development is growing rapidly in the past few years, while understanding of the range and nature of functionalities accessed through nanostructuring is just unfolding.

Understanding and preventing fracture and fatigue in micro and nano engineering applications depends upon the integration of knowledge in materials science, physics, chemistry and mechanics. This may fundamentally change the way materials and devices are produced, and revolutionize materials manufacturing industry segments.

Ova sekcija je usmerena na lom i zamor u nano razmeri sa širokim vidikom na procenu potrebnih istraživanja u raznolikom polju značajnih primena. Teme od posebnog interesa obuhvataju, ali nisu ograničene na sledeće oblasti:

- Zamor i lom u MEMS/NEMS
- Nove metode ispitivanja od nano- do mikrometerskih dužina
- Deformacija i lom biomolekula
- Mehanizmi ukрупnjavanja površinskih i tankih slojeva; formiranje samoorganizujućih šablona kod tankih slojeva, gonjeno atomsko kretanje
- Adhezija, lom i plastičnost tankih filmova i prevlaka
- Modeliranje mehaničkog ponašanja nanostrukturnih materijala; struktura greške i struktura granice u nanokompozitima
- Terenski eksperimenti AFM/SEM/HRTEM izvedeni na tankim slojevima i nano cevima
- Dinamika sistema grešaka i uzajamno dejstvo sastava faza, fazne transformacije i plastičnost
- Metode simulacije za povezivanje dužinskih razmera; sparivanje kvantnih do atomskih i atomskih do kontinuumskih simulacija

Za više informacija, kontaktirajte:

[ECF16@mail.mech.northwestern.edu](mailto:ECF16@mail.mech.northwestern.edu)

Preliminarni naslovi prezentacija treba poslati Prof. Horaciju D. Espinosa, najkasnije do 15. oktobra. Apstrakti se šalju na gornju e-mail adresu najkasnije do 30. januara.

Professor Horacio D. Espinosa  
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#### Posebni simpozijumi:

**Upravljanje radnim vekom inženjerskih konstrukcija na bazi rizika**, Predsedava Prof. Laslo Tot, Bay Zoltan Institute for Logistics and Production Systems, Miskolctapolca, Bay Zoltan Sqr. 1 H-3519, Tel: +36-46-560-110 ili +36-30-9-322-690, faks: +36-46-422-786, e-mail: [tlaszlo@alpha.bzlogi.hu](mailto:tlaszlo@alpha.bzlogi.hu). Ko-predsedava: Aleksandar Jovanović, R-tech, Germany, [jovanovic@risk-technologies.com](mailto:jovanovic@risk-technologies.com)

Osnovni pojmovi u tehničkom ekonomskom radnom veku su: Sigurnost, Pouzdanost i Rizik. Opšta tendencija aktivnosti u polju realnog ekonomskog veka ka iznalaženju sve više isplativih rešenja u projektovanju radnog ciklusa koja uključuju dizajn, pogon i tehnologije recikliranja. Alati primenjeni u spomenutim periodima veka komponente se sve brže razvijaju, pa se rizik raznih rešenja može sve bolje proceniti. Ovakva situacija pruža implementaciju pristupa na bazi rizika u različita područja i radne periode inženjerskih proizvoda i konstrukcija. Ovaj proces je ubrzan u Evropi putem rezultata različitih evropskih projekata, finansiranih *Framework* programima. Glavni rezultati i primene će se predstaviti u ovoj sekciji, uključujući rafinerije, hemijske industrije i elektrane.

**Simpozijum o deformaciji i lomu u nano razmeri**, organizuje Min Zou, *Georgia Institute of Technology, School of Mechanical Engineering, School of Materials Science and Engineering*, Atlanta, GA 30332-0405, USA. Email: [min.zhou@me.gatech.edu](mailto:min.zhou@me.gatech.edu) tel.: 404-894-3294, faks: 404-894-0186.

Pojava novih funkcionalnih nanokomponentata kao što su nanocervi, nanopojasevi, nanodiskovi, nanožice, nanonavojci i nanoprevlake, kao i nanostrukturni materijali, na primer, nanokristali i nanokompoziti, su pobudili aktivna istraživanja na nivou nano skale. Računske analize na bazi atomskog i pristupa kontinuumom se sve više koriste zajedno sa sintezom i eksperimentalnim analizama. Jedan trend je konvergencija fizike, mehanike i nauke o materijalima. Simpozijum bi trebao da spoji istraživače iz oblasti mehanike, fizike i materijala sa uvidom u neka od najnaprednijih istraživanja mehaničkog i termičkog ponašanja materijala na nivou nano razmere. Teme će obuhvatiti:

This session will focus on fracture and fatigue at the nanoscale within the larger scope of assessing research needs in a variety of applications of interest. Topics of particular interest include, but are not limited to, the following areas:

- Fatigue and Fracture in MEMS/NEMS.
- Novel test techniques from nanometre to micrometer length scales
- Deformation and fracture of biomolecules
- Mechanisms of surface and thin film coarsening; self-organized pattern formation in thin films, driven atomic motion
- Adhesion, fracture and plasticity of thin films and coatings
- Modelling mechanical behaviour of nanostructured materials; defect structure and interface structure of nanocomposites
- In-situ AFM/SEM/HRTEM experiments performed on thin films and nano tubes
- Collective dynamics of defects and interplay between phase composition, phase transformations, and plasticity
- Simulation methods for length scale linking; coupling quantum to atomistic and atomistic to continuum simulations

For More Information, please contact:

[ECF16@mail.mech.northwestern.edu](mailto:ECF16@mail.mech.northwestern.edu)

Preliminary presentation titles should be submitted to Prof. Horacio D. Espinosa no later than Oct. 15th. Abstracts should be submitted to the above e-mail no later than January 30th.

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#### Special Symposia:

**Risk Based Life Time Management of Engineering Structures**, Chair: Prof Laszlo Toth., Bay Zoltan Institute for Logistics and Production Systems, Miskolctapolca, Bay Zoltan Sqr. 1 H-3519, Phone: +36-46-560-110 or +36-30-9-322-690, fax: +36-46-422-786, e-mail: [tlaszlo@alpha.bzlogi.hu](mailto:tlaszlo@alpha.bzlogi.hu). Co-Chair: Alexander Jovanovic, R-tech, Germany, [jovanovic@risk-technologies.com](mailto:jovanovic@risk-technologies.com)

Basic words in technical economical life are: Safety, Reliability and Risk. General tendency of activities in the field of real economical life is to find more and more cost effective solutions for life cycle engineering which includes design, operation and recycling technologies. Tools involved in the mentioned periods of product life are developing very quickly, so the risk of different solutions can be estimated even better. This situation provides to implement the risk based approaches in different field among them in the operating periods of engineering productions, structures. This process has been accelerated in Europe by results of different European projects financed by Framework Programs. The main results, applications will be presented in this session including the refineries, chemical plants, power plants.

**Symposium on Nanoscale Deformation and Failure**, organized by Min Zhou, Georgia Institute of Technology, School of Mechanical Engineering, School of Materials Science and Engineering, Atlanta, GA 30332-0405, USA. Email: [min.zhou@me.gatech.edu](mailto:min.zhou@me.gatech.edu) phone: 404-894-3294, fax: 404-894-0186.

Emergence of novel functional nanocomponents such as nanotubes, nanobelts, nanodisks, nanowires, nanocoils and nanocoatings, and nanostructured materials such as nanocrystals and nanocomposites has excited active research at the nanoscale. Computational analyses using atomistic and continuum approaches were increasingly used along with synthesis and experimental analyses. One trend is the convergence of physics, mechanics and materials science. The symposium is intended to bring together researchers from mechanics, physics and materials communities with a glimpse at some state-of-the-art research on mechanical and thermal behaviours of materials at the nanoscale. Topics to be covered include:

- Atomističko i kontinuumsko modeliranje deformacije i loma u nano skali
- Mehaničko i termičko ponašanje nanokomponenta i nanostrukturnih materijala
- Eksperimentalnu karakterizaciju deformacija, loma i zamora u nano skali
- Nanoutiskivanje
- Superelastičnost i plastičnost nanožica, nanokaiševa (nanopojaseva) i nanocevi
- Efekti dimenzija na nivou nano razmere
- Deformaciju i lom nanokompozita i nanostrukturnih materijala
- Uticaji sinteze i izrade na ponašanje u nivou nano razmera

Mole se svi zainteresovani da pošalju svoje apstrakte Dr Min Žou na e-mail: [min.zhou@me.gatech.edu](mailto:min.zhou@me.gatech.edu) do 31. marta 2005.

#### Kontakt organizatora:

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**Shah simpozijum: Merenje, praćenje i modeliranje osobina betona**, u organizaciji Marije S. Konsta-Gdoutos, *Democritus University of Thrace*.

Priprema se i poseban simpozijum u kontekstu ECF16 u čast Surendre P. Ša-a, koji je *Walter P. Murphy* profesor na *Northwestern University*.

Teme simpozijuma su:

- Mehanika loma betona, kamena i zidanih građevina
- Mikromehanika cementitnih kompozita
- Napredne senzorske metode za praćenje stanja konstrukcije
- Inženjersko izvođenje i modeliranje brzovezujućeg betona
- Degradacija, reparacija i rehabilitacija betonskih konstrukcija
- FRP (vlaknasto ojačana plastika) i tekstili u cementnim kompozitima

#### POZIV

Prof. Dr Bernt Mišel načelnik Centra za mikromaterijale Fraunhofer instituta za pouzdanost i mikrointegracije (IZM) iz Berlina će kao gost DIVK boraviti u Beogradu 14. i 15. decembra 2004.

Tom prilikom će prof. Mišel održati dva predavanja:

Predavanje u DIVK

#### **Microreliability, Nanoreliability – Fracture Mechanics on the Way from Micro to Nano?**

(Mikropouzdanost, nanopouzdanost – mehanika loma na prelazu od mikro ka nano?)

Predavanje na Mašinskom fakultetu u Beogradu

#### **Advances in Micro- and Nanotechnologies – Reliability Issues, Testing and Applications**

(Razvoj mikro- i nano-tehnologija – problemi pouzdanosti, ispitivanja i primene)

Vreme i tačno mesto će biti objavljeni naknadno. Informacije se mogu dobiti na Web strani DIVK ([www.divk.org.yu](http://www.divk.org.yu)) i u redakciji časopisa.

- Atomistic and continuum modelling of nanoscale deformation and failure
- Mechanical and thermal behaviours of nanocomponents and nanostructured materials
- Experimental characterization of nanoscale deformation, fracture and fatigue
- Nanoindentation
- Superelasticity and plasticity of nanowires, nanobelts, and nanotubes
- Size effect at the nanoscale
- Deformation and failure of nanocomposites and nanostructured materials
- Effects of synthesis and fabrication on nanoscale behaviour

Please send abstracts to Dr. Min Zhou through e-mail at: [min.zhou@me.gatech.edu](mailto:min.zhou@me.gatech.edu) by March 31, 2005.

#### Organiser contact:

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**Shah Symposium: Measuring, Monitoring and Modelling Concrete Properties**, organized by Maria S. Konsta-Gdoutos, *Democritus University of Thrace*.

A special symposium within the context of ECF16 in honour of Surendra P. Shah, Walter P. Murphy Professor of Northwestern University, will take place.

Symposium Topics

- Fracture mechanics of concrete, stone and masonry
- Micromechanics of cementitious composites
- Advanced sensing techniques for structural health monitoring
- Engineering performance and modelling for early age concrete
- Degradation, repair and rehabilitation of concrete structures
- FRP's and textiles in cement composites