

BIOGRAFIJE ČLANOVA UPRAVNOG ODBORA DIVK



Vasilije Sarić

Vasilije Sarić je direktor Centra za ispitivanje, kvalitet i ekologiju, u Javnom komunalnom preduzeću „Beogradske elektrane“, Beograd, od 01.09.2005.

Sarić Dragomira Vasilije je rođen 14.01.1949. u selu Brusniku, SO Ivanjica, Srbija. Četvorogodišnju osnovnu školu je završio u rodnom mestu, a nastavio i završio osmogodišnju školu u Devićima. Srednju je školu završio u Ivanjici 1968. godine. Diplomirao je na Tehnološko-metalurškom fakultetu u Beogradu 1973. Po odsluženju vojnog roka 1974. godine zaposlio se u Institutu „Kirilo Savić“ u Beogradu, gde je više od 30 godina radio na različitim radnim mestima u kontroli kvaliteta materijala i tehnologiji zavarivanja na svim većim objektima u zemlji.

Član je DIVK od osnivanja.



Vasilije Sarić is director of the Centre for testing, quality and ecology in the Public Utility Company “Beogradske elektrane,” Belgrade, since 01.09.2005.

Sarić Dragomira Vasilije was born on 14.01. 1949 in the village Brusnik, Ivanjica, Serbia. He spent the first four years of primary school in his birthplace, and the second part in Devići. He finished secondary school in 1968 in Ivanjica. Vasilije Sarić graduated in 1973 at the Faculty of Technology and Metallurgy in Belgrade. After military service in 1974 he joined the Institute “Kirilo Savić” in Belgrade, where he worked for more than 30 years in fields of material quality control and welding technology on most important objects in the country.

He is DIVK founder member.

Vasilije Sarić

CURRICULUM VITAE OF DIVK GOVERNING BOARD MEMBERS

IN MEMORIAM

POMEN NA DŽONA REJDONA

Dr Džon Rejdon, PhD, F.I. Mech. E., M.A.S.T.M. je preminuo 4. maja 2007. posle kraće bolesti. Džon je došao u Englesku iz tadašnje Čehoslovačke nekoliko godina posle Drugog svetskog rata kao iskusni inženjer. Zaposlio se početkom 60-tih kao istraživač na Mašinskom fakultetu Imperial koledža u Londonu. Proučavao je niskociklični zamor livenog gvožđa na povišenim temperaturama. Doktorirao je 1966.

Sarađivao je u više istraživačkih oblasti mehanike loma sa Sedrikom Tarnerom, uključujući prva istraživanja na instrumentiranom klatnu, ispitivanje epruveta sa zarezom čelika srednje čvrstoće i, kasnije, sa Džordžom Vebsterom, na rastu prslina pri pužanju. Džon je intenzivno radio na proučavanju problema loma i zamornih prslina kod polimera, akustičnoj emisiji pri rastu prslina u čeliku, uticaju okoline na brzinu rasta i metodama ispitivanja i uticaju dvoosnog opterećenja.

U poslednje vreme je radio sa Patrikom Liversom, oni su sakupili neuobičajene reference o njihovom radu na legurama za avione u bestseler romanu „Airframe“ Majkla Kriptona (poznatom po Parku iz doba Jure, itd).

Dr Rejdon je radio sa studentima i kolegama iz raznih zemalja, uključujući iz Brazila, Kanade, Kine, Mađarske, Portugala i Jugoslavije. Sve do kraja je održavao kontakte sa kolegama iz Evrope, posebno sa onima iz Češke i Srbije, napisao je rad sa dr Kneslom 2003/04, vodio je seminar 2004, a poslednji rad je bilo saopštenje 2006. na konferenciji koju je organizovao njegov prijatelj profesor Stojan Sedmak.

Džon je bio dobro poznat u međunarodnim krugovima koji su se bavili lomom, jer je prisustvovao na brojnim godišnjim konferencijama o zamoru i lomu koje su držane pod okriljem komiteta E08 ASTM. Sa suprugom Džojks je stekao reputaciju „domaćina za lom u Londonu“ pri poseti mnogih američkih eksperata.

Sačuvao je ono što je doneo iz srednje Evrope, pažnju u ophođenju i manire svetskog čoveka. Nažalost, nedostajace mnogim kolegama i prijateljima.

Sedrik E. Tarner

Emeritus profesor za materijale na
Mašinskom fakultetu Imperial koledža,
London

IN MEMORIAM

TO JOHN RADON IN MEMORIAM

Dr John C. Radon, died in London on May 4th 2007 after a brief illness. John came to England from the then Czechoslovakia some years after the end of World War II as an already experienced engineer. He joined the Mechanical Engineering Department, Imperial College, London, in the early 1960s to undertake research. He studied low cycle fatigue of cast irons at elevated temperature, obtaining his PhD in 1966.

He then worked with Cedric Turner on many aspects of the emerging subject of fracture mechanics, including some early applications of instrumented impact testing, notch testing of low or medium strength steels and later, together with George Webster, on creep crack growth. John had a very wide interest in fracture and fatigue crack growth of polymers, acoustic emissions during crack growth in steel, environmental effects on growth rate and test methods for, and effects of, biaxiality of loading.

For this last, working with Patrick Leever, they collected a most unusual citation – a reference to their work on biaxiality in aircraft alloys in the bestselling novel “Airframe” by Michael Crichton (he of Jurassic Park fame etc.).

Dr Radon worked with students and colleagues from many countries including Brazil, Canada, China, Hungary, Portugal and Yugoslavia. Until the end he kept up his contacts with European colleagues in what had become the Czech Republic and Serbia, writing papers on aspects of fatigue with Dr Z. Knesl in 2003/4, leading a seminar in 2004 and a last paper in 2006 to a conference held by his friend Professor Stojan Sedmak.

John was well known on the international fracture circuit, attending many of the annual fatigue and fracture conferences held under the auspices of the A.S.T.M. E08 Committee. Together with his wife Joyce he gained a reputation as 'the fracture host of London' for many visiting American academics.

He maintained his central European upbringing, always ensuring a courteous and urbane manner. He will be sorely missed by his many colleagues and friends.

Cedric E. Turner

Emeritus Professor of Materials in
Mechanical Engineering, Imperial College,
London

DOPRINOS DŽONA REJDONA RAZVOJU ISTRAŽIVANJA INTEGRITETA I VEKA KONSTRUKCIJA U SRBIJI

Trideset godina je prošlo od kada sam upoznao Džona Rejdona. Bilo je to 1977. kada sam po prvi put prisustvovao Međunarodnoj konferenciji o lomu (ICF 4) u Kanadi (Vaterlo). Bio je ljubazan sagovornik i uputio me je u stanje sa istraživanjem o lomu u Evropi i svetu, i zainteresovan da sazna na čemu se radi u tadašnjoj Jugoslaviji. To je bio period kada smo pod vođstvom Aleksandra Radovića uvodili ispitivanja mehanike loma u Vojnotehničkom institutu u Beogradu, pa je bilo interesantnih pitanja za razgovor sa iskusnim istraživačem, kakav je u to vreme već bio Džon Rejdon. Slučaj je hteo da smo se ponovo sreli 1979. u Kembridžu na Međunarodnoj konferenciji o mehaničkim osobinama materijala (ICM 3). Tada je bio prikazan rad „Čvrstoća zavarenih spojeva HSLA čelika nakon početne plastične deformacije“ autora S. Sedmak. A. Radović, Lj. Nedeljković, koji je privukao značajnu pažnju zbog interesantnog eksperimentalnog istraživanja. Ponovo smo mogli da diskutujemo, ovog puta mnogo konkretnije. Već 1980. godine je bila organizovana Prva međunarodna letnja škola mehanike loma (IFMASS 1) u Srbiji, u Smederevskoj Palanci, i jedan od pozvanih predavača bio je Dž. Rejdon. Iako je poziv prihvatio, u vreme održavanja škole je bio sprečen da dođe. Međutim, posle toga je bio vrlo aktivan predavač na sledećih pet škola, sa predavanjima, objavljenim u odgovarajućim monografijama:

1. *Zamorni lomovi sudova pod pritiskom i metode za određivanje njihovog veka trajanja*, str. 224-240, i *Primer primene LEML za analizu sudova pod pritiskom na PWR reaktorski sud pod pritiskom*, str. 241-246. (IFMASS 2).

2. *Rast površinskih prslina usled zamora u čeličnim zavarenim spojevima*, str. 177-210 (IFMASS 3).

3. *Predviđanje razvoja zamorne prsline pri vrlo niskim intenzitetima napona*, str. 229-242 (IFMASS 4).

4. *Rast zamorne prsline na povišenim temperaturama* (IFMASS 5).

5. *Nastanak i rast zamornih prslina na posudama pod pritiskom*, str. 52 -68 (IFMASS 6).

Monografije IFMASS pokazuju da je među stranim predavačima Džon Rejdon imao posebno mesto, zajedno sa Majklom Vnukom, Adamom Mazurom i Mohanom Ratvanijem.

Posle IFMASS 4 je naša saradnja postala intenzivna. Tako je Džon bio član komisije za odbranu doktorske disertacije Aleksandra Jovanovića „Model procene strukturne pouzdanosti zasnovan na nelinearnoj računarskoj analizi J-integrala“ na Tehnološko-metalurškom fakultetu u Beogradu 1986. Njegovim posredovanjem Vencislav Grabulov je 1986. proveo 3 meseca u laboratorijama Imperial koledža kod Hju Mak Gilivrija. Sve vreme boravka Vencislav je imao bliske kontakte i značajnu pomoć Džona Rejdona, ne samo u stručnom, već i u privatnom pogledu. Veoma uspešni eksperimenti merenja rasta prsline metodom pada potencijala sukcesivnim rasterećivanjem jedne epruvete i na instrumentiranom klatnu za određivanju dinamičke J-R krive, izvedeni na Imperial koledžu, su bili osnova za doktorsku disertaciju, koju je Grabulov odbranio 1995. godine.

Takav razvoj odnosa doveo je do podsticanja da se Jugoslavija kandiduje za organizaciju 9. Evropske konferencije o lomu (ECF 9) za 1992, što je prihvaćeno na Upravnom odboru Evropskog društva za integritet konstrukcija, upravo uz značajnu podršku Džona Rejdona. I pored problema nastalih raspadom Jugoslavije, ECF 9, održana u Varni 1992, je bila vrlo uspešna.

Uspešna saradnja na stručnom nivou se odražavala i na lične kontakte. Pamtim kraće boravke i vrlo interesantne susrete u kući Rejdonovih, uz gostoljubivost supruge Džojks. Bilo je i zajedničkih obeda, kako u Jugoslaviji tokom IFMASS aktivnosti, tako i u Londonu, poslednji decembra 2005, na kome smo se dogovorili za rad

CONTRIBUTION OF JOHN RADON TO THE DEVELOPMENT OF STRUCTURAL INTEGRITY AND LIFE RESEARCH IN SERBIA

Thirty years have passed from the time when I acquainted John Radon. It was in 1977 when I participated for the first time at the International Conference of Fracture (ICF 4) in Canada (Waterloo). He was a complaisant company, introducing me in current state fracture research in Europe and in the world, and interested to know what we are doing that time in Yugoslavia. It was the period of introducing fracture mechanics tests lead by Aleksandar Radović at the Military Technical Institute, so there were topics to be discussed with an experienced researcher, as was John Radon already. It happened that we met again in 1979 in Cambridge at International Conference on Mechanical Behaviour of Materials (ICM 3). That time we presented the paper “The strength of welds in HSLA steel after initial plastic deformation” by S. Sedmak. A. Radović, Lj. Nedeljković, and attracted the attention presenting an interesting experimental research. We could again discuss, this time more concretely. Already in 1980, the First International Fracture Mechanics Summer School (IFMASS 1) had been organised in Serbia, in Smederevska Palanka., and one of the invited lecturers was John Radon. Although he accepted the invitation, he was prevented to come in time of the school. Anyhow, after that he was an active lecturer for the next five held Schools, presenting lectures published afterwards in corresponding monographs:

1. *Fatigue fractures of pressure vessels and methods for determination of their service life*, pp.224-240, and *An example of LEFM use for analysis of pressure vessels to pressure vessel of PWR reactor*, pp.241-246 (IFMASS 2).

2. *The growth of surface cracks due to fatigue in steel welded joins*, pp.177-210 (IFMASS 3).

3. *Prediction of fatigue crack growth at very low stress intensities*, pp.229-242 (IFMASS 4).

4. *Crack propagation at elevated temperatures*, pp.117-134 (IFMASS 5).

5. *Initiation and propagation of fatigue cracks in pressure vessels*, pp.52-68 (IFMASS 6).

The IFMASS monographs indicate that among foreign lecturers John Radon has a special position, together with Michael Wnuke, Adam Mazur, and Mohan Ratwani.

After IFMASS 4 our cooperation intensified. So, John was a member of the committee for doctoral dissertation defence of Aleksandar Jovanović “Model for structural reliability assessment based on non-linear computer analysis of J-integral” at the Faculty of Technology and Metallurgy in Belgrade, in 1986. By his intervention Vencislav Grabulov spent 3 months in 1986 in laboratories of Imperial College with Hugh Mac Gillivray. During the visit Vencislav had close contacts and important help of John Radon, not only in professional aspect, but also in private aspect. Very successful experiments of crack growth measurements using potential drop in successive unloading of single specimens and on instrumented pendulum for determination of dynamic J-R curve, performed at Imperial College, were the basis for Grabulov’s doctoral dissertation, which he defended in 1995.

Such a development of relation was an encouragement for Yugoslavia to apply for the organisation of 9th European Conference of Fracture (ECF 9) in 1992, what was accepted at European Structural Integrity Society Governing Board, with the support of John Radon. In spite the problems involving the destruction of Yugoslavia, ECF 9, held in Varna in 1992 was very successful.

Successful cooperation at professional level reflected also to personal contacts. I remember short visits and very interesting parties in home of Radons, with the hospitality of spouse Joyce. We had joint meals, in Serbia during IFMASS events, as well in London, the last one being in December 2005, when we agreed for

koji je objavljen u časopisu Integritet i vek konstrukcija 3/2006. Tokom ECF 7 u Budimpešti 1988. smo zajedno sa Rejdonom i sa Katarinom Gerić bili gosti na večeri kod Erne Coboljija. U vreme IFMASS 6 Džojcs i Džon Rejdon su bili gosti Ivana Glavardanova 1991. u njegovoj vikendici kraj Novog Sada.

Džon Rejdon ostaje u našim sećanjima kao veliki prijatelj i izvanredan saradnik u stručnom radu.

the paper published in the journal Structural Integrity and Life 3/2006. During ECF in Budapest in 1988 we were together with Radons and Katarina Gerić, the guests for dinner at Erne Czoboly home. During IFMASS 6 Joyce and John Radon were guests of Ivan Glavardanov in 1991 in his country house near Novi Sad.

John Radon stays in our memories as a great friend and an extraordinary co-worker in professional work.



Ekскурzija tokom IFMASS 6, održane u Vrdniku 1991. Džon Rejdon je u sredini.
The excursion during IFMASS 6, held in Vrdnik in 1991 with John Radon in centre.

S. Sedmak

SKUPOVI – EVENTS



NATO RAZVOJNO-ISTRAŽIVAČKA RADIONICA: SIGURNOST, POUZDANOST I RIZIK CEVO- VODA ZA VODU, NAFTU I GAS

Radionica posvećena problemima sigurnosti, pouzdanosti i rizika cevovoda održana je od 4. do 7. februara 2007. u hotelu „Helnan Palestina“ u Aleksandriji (Egipat).

Generalno, greške koje se u cevovod unesu u toku proizvodnje, montaže ili popravke, ili koje nastanu u toku eksploatacije, su prirodna mesta za lom cevi. Po pravilu takav lom ima dramatične posledice sa stanovišta sigurnosti, zdravlja, ekonomije i zaštite okoline. Zbog toga je radionica posvećena mehaničkim problemima cevovoda sa greškom, koji je izložen pritisku. Radionica treba da pruži osnovni alat inženjerima koji se bave uvođenjem i održavanjem mreže cevovoda pod pritiskom.

Radionicu su organizovali profesor Gi Plivinaž, ENIM–Nacionalna inženjerska škola u Mecu (Francuska) i profesor Muhamed Hamdi Elvani sa univerziteta u Aleksandriji (Egipat). Sekretar radionice je bio Filip Žoden, a njegov pomoćnik Žilijen Kapel, Nacionalna inženjerska škola, Mec (Francuska).

Biće objavljena knjiga koja će obuhvatiti sva predavanja. Izložena saopštenja radionice su dostupna na CD disku.



NATO ADVANCED RESEARCH WORKSHOP: SAFETY, RELIABILITY AND RISKS ASSOCI- ATED WITH WATER, OIL AND GAS PIPELINES

A workshop devoted to problems of pipeline safety, reliability and risk was held from 4th to 7th February 2007 at “Helnan Palestine” hotel in Alexandria (Egypt).

Generally, the defects introduced in pipelines during manufacture, installation and repair, or created during service are native locations for pipe fracture. Such fracture generally has dramatic consequences from the point of view of safety, health, economy and environment. In that course, the workshop is dedicated to the analysis of mechanical problems of pressure pipes containing defects. The workshop was to offer a tool box for engineers that have to prepare and maintain the pressure piping network.

The workshop was organised by Professor Guy Pluvinaze of ENIM, National School of Engineering in Metz (France) and by Professor Mohamed Hamdy Elwany from Alexandria University, Alexandria (Egypt). Workshop secretary was Dr Philippe Jodin, and Julien Capelle the deputy secretary, National School of Engineering, Metz (France).

A book containing all lectures will be published. Presentations at the workshop are available on the CD.

Predavači – Lecturers	<u>List of lectures</u>	<u>Spisak predavanja</u>
Tema – Theme	Pipeline treats	Uticaji na cevovod
G. Pluvinage (France)	General approach of pipeline integrity management	Generalni pristup upravljanju integritetom cevovoda
H.-J. Shi (China)	The thermal and mechanical behaviour of joint pipe system calculated by finite elements method	Termičko i mehaničko ponašanje sistema spojenih cevi sračunato metodom konačnih elemenata
B. Vodenicharov (Bulgaria)	Degradation of the physical and mechanical properties of the pipeline material depending on the term of exploitation	Degradacija fizičkih i mehaničkih osobina materijala cevovoda u zavisnosti od dužine trajanja eksploatacije
H. Van Wortel (Netherlands)	Fatigue damage of pipes transporting mixture of natural gas and hydrogen	Zamorno oštećenje cevi za transport mešavine prirodnog gasa i vodonika
E. Hadj-Taieb (Tunisia)	Leak detection in pipes using the impedance methods	Otkrivanje curenja u cevima metodom impedanse
Tema – Theme	Treat identification	Identifikacija uticaja
I. Dmytrakh (Ukraine)	Corrosion fatigue cracking and failure risk assessment of the pipelines	Prsline od korozijskog zamora i ocena rizika otkaza cevovoda
V. Sapunov (Russia)	Stable and unstable crack growth in pipes	Stabilni i nestabilni rast prsline u cevima
I.A. Abdallah (Egypt)	A novel long range ultrasonic testing method for the rapid survey of pipes and pipelines	Nova metoda ispitivanja ultrazvukom dugog opsega za brzu kontrolu cevi i cevovoda
Tema – Theme	Reliability assessment	Ocena pouzdanosti
L. Tóth (Hungary)	Reliability assessment of pipeline having different type of defects	Ocena pouzdanosti cevovoda sa različitim tipovima grešaka
A. Chaoui (Algeria)	Reliability assessment in gas pipelines using PHIMECA software	Ocena pouzdanosti gasovoda primenom PHIMECA programa
A. Krasowsky (Ukraine)	The experience on safety, reliability and risk assessment of some Ukrainian, Russian and Latvian transit pipelines	Iskustvo u oceni sigurnosti, pouzdanosti i rizika nekih ukrajinskih, ruskih i latvijskih cevovoda
A. Moussa (Egypt)	Installation of pipeline projects	Izvođenje projekata cevovoda
R. Denys (Belgium)	Strain based design for pipes	Projektovanje cevovoda na bazi deformacija
Tema – Theme	Integrity assessment	Ocena integriteta
S. Sedmak (Serbia)	Welded penstock, produced of high strength steel and application of fracture mechanics parameters to structural integrity assessment	Zavareni cevovod, izraden od čelika visoke čvrstoće i primena parametara mehanike loma za ocenu integriteta konstrukcije
G. Pluvinage (France)	Probabilistic approach of the risk assessment of gas pipes	Probabilistički pristup oceni rizika gasovoda
N. Gubeljak (Slovenia)	Application of SINTAP failure assessment diagram to pipes	Primena dijagrama za ocenu otkaza SINTAP na cevovode
Tema – Theme	Repair and remediation	Popravka i sanacija
Ph. Jodin (France)	Fracture mechanics analysis of repairing a cracked pressure pipe with a composite sleeve	Analiza mehanike loma saniranog cevovoda pod pritiskom sa prsline sa rukavom od kompozita
A. El-Ashram (Egypt)	Repair welding of oil pipelines	Reparaturno zavarivanje naftovoda
R. Batisse (France)	Review of gas transmission pipeline repair methods	Pregled postupaka za saniranje gasovoda
Tema – Theme	Contributing papers and posters	Prilozi i poster
Z. Azari (France)	Failure of gas pipes	Otkaz gasovoda
A. Bia (Algeria)	Structure design with cracks and defects (macro-, micro- and meso-cracks). Simulation, boundaries integrals, finite elements	Projektovanje konstrukcija sa prslinama i greškama (makro-, mikro- i meso- prsline). Simulacija, granični integrali, konačni elementi
T. Boukharouba (Algeria)	Some insights into the fatigue crack propagation in tubes under internal pressure – proposition of predicting models	Neki pogledi na rast zamorne prsline u cevima pod unutrašnjim pritiskom – predlog modela za predviđanje
J. Capelle (France)	Hydrogen effect on the fatigue life of a pipe steel	Uticaj vodonika na zamorni vek čeličnih cevi
K. Dang-Van (France)	On a new software project for welding simulation of pipes (fabrication, repairs) and for the evaluation of fatigue behaviour of pipes in service	O novom projektu softvera za simulaciju zavarivanja cevi (proizvodnja, popravka) i za ocenu zamornog ponašanja cevi u eksploataciji
K. Habib (Kuwait)	Failure analysis of cracked reducer flange in oil refinery	Analiza otkaza redukcijske priрубnice sa prsline u rafineriji nafte
M.T. Shehata (Canada)	Initiation of stress corrosion and hydrogen induced cracking in oil and gas line-pipe steels	Inicijacija prsline izazvanih naponskom korozijom i vodonikom u čeličnim naftovodima i gasovodima
T.A. Yakoubov (Russia)	Jumps of pressure in view of a pliability of a wall of the pipeline	Skok pritiska i izbočavanje zida cevovoda

S. Sedmak

SEMINAR

INTEGRITET KONSTRUKCIJA UGROŽENIH
KOROZIJOM

Potreba da se organizuje seminar „Integritet konstrukcija ugroženih korozijom“ je podstaknuta neočekivanim slučajevima korozije, sa ciljem da se razjasni ponašanje postrojenja u sistemu daljinskog grejanja Beograda u agresivnoj sredini i da se stručnjaci JKP „Beogradske elektrane“ upute u mogućnosti njegovog rešavanja. Seminar je održan 4. i 5. aprila 2007.

Ovo je treći po redu seminar koji DIVK organizuje za saradnike JKP „Beogradske elektrane“.

Prvi je bio petodnevni seminar u obimu od 40 časova „Ispitivanje opreme pod pritiskom (OPP) u eksploataciji i procena veka“ (prema zahtevima PED 97/23/EC i Zakona o energetici), održan marta 2005. Posebna pažnja u tom seminaru je bila posvećena laboratorijskim ispitivanjima, tako da je održano i 14 časova eksperimentalnih vežbi. Seminar je pratilo 10 učesnika, koji su dobili odgovarajući sertifikat.

Drugi seminar „Određivanje deformacija i napona ispitivanjem indirektnim metodama i modeliranjem“ je obuhvatio 9 predavanja. Održan je 17. marta 2006. za 25 saradnika JKP „Beogradske elektrane“. Recenzirana predavanja ovog seminara objavljena su u časopisu DIVK „Integritet i vek konstrukcija“, broj 1-2/2006.

Posle obrade, predavanja seminara „Integritet konstrukcija ugroženih korozijom“ će biti objavljena u broju 2/2007 časopisa „Integritet i vek konstrukcija“, a disk sa održanim izlaganjima je podeljen učesnicima seminara.

Spisak predavanja

Predavači – Lecturers	Naziv predavanja
V. Sarić	Namena i obim seminara
S. Čubrilović, G. Mandić	Primeri otkaza zbog korozije postrojenja JKP „Beogradske elektrane“
D. Dražić, B. Jegdić	Naponska korozija
Lj. Rajaković	Korozijski procesi u termoenergetskim postrojenjima zbog nedovoljnog kvaliteta vode
A. Onjia	Analitičke tehnike za određivanje i praćenje hemijskih supstanci od uticaja na koroziju
S. Vidojković	Fizičko-hemijske karakteristike vodene sredine na termoenergetskim objektima i njen uticaj na konstrukcijski materijal
M. Stojanović	Ispitivanje i ocena otpornosti prema koroziji konstrukcijskih materijala u različitim uslovima eksploatacije
B. Milošević, Č. Lačnjevac	Postupci zaštite od korozije
N. Radović	Izbor materijala za konstrukcije izložene koroziji
S. Nešić, Č. Lačnjevac	Primeri i analiza izvedene zaštite od korozije
B. Jegdić, B. Bobić	Korozija zavarenih spojeva
V. Šijački-Žeravčić, G. Bakić, M. Đukić, B. Anđelić	Analiza rezultata ispitivanja vrelovodnog kotla kao podloga za ocenu njegovog integriteta
B. Ošljanac	Neki korozioni problemi plameno-dimne strane kotla
M. Đukić, V. Šijački-Žeravčić, G. Bakić, B. Anđelić	Integritet kotlovske postrojenja u uslovima vodoničnih oštećenja
Z. Karastojković, Z. Janjušević, Z. Kovačević, S. Čubrilović	Analiza oštećenja toplovodnih cevi korozijom
N. Filipović	Analiza oštećenja od korozije
S. Sedmak	Procena veka komponenti sa početnom korozijom

SEMINARY

INTEGRITY OF STRUCTURES ENDANGERED
BY CORROSION

The necessity to organise the seminary “Integrity of structures endangered by corrosion” was stimulated by unexpected cases of corrosion, in efforts to understand the behaviour in an aggressive environment of equipment in Belgrade’s remote heating system, and to involve experts of JKP “Beogradske elektrane” in the task of its solving. The seminary was held on 4th and 5th April 2007.

This is the third seminar in a row organised by DIVK for co-workers of JKP “Beogradske elektrane.”

The first was the five-day seminary in the scope of 40 hours “Testing of pressurized equipment (PE) in service and life assessment” (according to PED 97/23/EC and Energy Law requirements), held in March 2005. Special attention in the seminary was devoted to laboratory testing, 14 hours of exercise was involved. The seminary was followed by 10 participants, receiving corresponding certificates.

The second seminary “Determination of strains and stresses by indirect testing methods and modelling” included 9 lectures. It was held on 17th March 2006, for 25 co-workers of JKP “Beogradske elektrane.” Reviewed lectures of this seminary are published in DIVK journal “Structural Integrity and Life,” issue 1-2/2006.

After review, the lectures of seminary “Integrity of structures endangered by corrosion” will be published in issue No 2/2007 of “Structural Integrity and Life,” and presentations on CD were hand out to seminary participants.

List of lectures

Lecture title
Aim and scope of the seminary
The examples of failure by corrosion of equipment JKP “Beogradske elektrane”
Stress corrosion
Corrosive processes in power plants due to inadequate water quality
Analytical techniques for assessment and monitoring chemical substances affecting the corrosion
Physical-chemical properties of water environment in power plants equipment and its effect on structural material
Testing and assessment of corrosion resistance of structural materials in different service conditions
Protection methods for corrosion
Material selection for structures exposed to corrosion
Examples and analysis of involved corrosion protection
Corrosion of welded joints
Results analysis of hot water boiler testing as the basis for its integrity assessment
Some corrosion problems of fume-fire side of boiler
Boiler installation integrity in hydrogen damage conditions
Corrosion damage analysis of hot water tubes
Corrosion damage analysis
Life assessment of components with initial corrosion

S. Sedmak

PRVI MEĐUNARODNI KONGRES U ORGANIZACIJI SRPSKOG DRUŠTVA ZA MEHANIKU

Vreme za nauku

Prvi međunarodni kongres u organizaciji Srpskog društva za mehaniku održan je od 10 do 13. aprila 2007. na Kopaoniku pod pokroviteljstvom Ministarstva za nauku i ekologiju Vlade Srbije i Inženjerske komore Srbije. Kongres je okupio veliki broj priznatih naučnika iz oblasti teorijske i primenjene mehanike iz zemlje i inostranstva.

Na otvaranju Kongresa prisutnima su se obratili dr Dragoslav Šumarac, predsednik, i dr Miloš Nedeljković, potpredsednik Srpskog društva za mehaniku (SSM), dr Milisav Damjanović, predsednik Nadzornog odbora Inženjerske komore Srbije, gosp. Bojan Milovanović, predsednik Opštine Raška, mr Stevan Šamšalović, predsednik Saveza inženjera i tehničara Srbije. Kongresu je preneo pozdrave predsednik Grčkog društva za mehaniku, profesor dr Džon Katsikadelis.

Na plenarnim sekcijama slušaoci su se upoznali sa rezultatima najnovijih istraživanja naučnika iz zemlje i inostranstva, kroz predavanja akademika dr Vladana Đorđevića i dr Teodora Atanackovića i gostiju, prof. Katsikadelisa, Institut za analizu konstrukcija Građevinskog fakulteta – Škola za seizmička istraživanja Nacionalnog tehničkog Univerziteta u Atini, i dr Robina Takeru, profesora Lankaster Univerziteta Bejrlig, Lankaster, UK. Predviđeno plenarno predavanje predsednika Srpske akademije nauka i umetnosti akademika dr Nikole Hajdina nije održano, zbog njegovih zdravstvenih problema u vreme kongresa.

Rad kongresa je bio podeljen po sekcijama kao i na ranijim kongresima koje je organizovalo Jugoslovensko društvo za mehaniku: opšta mehanika, mehanika fluida, mehanika deformabilnog tela i multidisciplinarni problemi u mehanici. Međutim, u okviru ovogodišnjeg kongresa su, kao novina, organizovani i minisimpozijumi. Ove godine su održani tematski sledeći minisimpozijumi: Računske metode u analizi konstrukcija i optimizacija primenom metode konačnih elemenata; Biomehanika; Matematičke metode u mehanici; Geometrija u fizici i Mehanika loma.

Predstavljeno je oko 160 radova od više 250 autora. Velikim naporom organizatora, pre početka Kongresa štampan je Zbornik radova i pripremljen disk. Više od 80% prijavljenih radova je predstavljeno na Kongresu.

Tokom kongresa održana su dva okrugla stola. Tema prvog okruglog stola „Predmeti mehanike na univerzitetima u Srbiji u svetlu Bolonjske deklaracije“ je bila interesantna za uvođenje programa mehanike po bolonjskim propisima. Stavove je izložilo preko 20 učesnika. Dominiralo je mišljenje da su predmeti mehanike oštećeni ovim promenama i da mehanici treba vratiti mesto kakvo je imala u programima tehničkih fakulteta, kao fundamentalno znanje budućih inženjera. Drugi okrugli sto „Projektovanje i gradnja autoputeva u Grčkoj: primer autoputa EGNATIA ODOS u severnoj Grčkoj“ je imao stručni karakter. Iskustva u gradnji autoputeva je izložio prof. A. Liolios, potpredsednik kompanije EGNATIA ODOS.

Treba istaći da je Kongres posebnu pažnju posvetio velikanu srpske nauke Milutinu Milankoviću (članak *'A Tribute to Milutin Milanković'* u Zborniku).

Društvo za integritet i vek konstrukcija (DIVK) se predstavilo minisimpozijumom „Mehanika loma“.

Vreme na Kopaoniku bilo naklonjeno učesnicima, naročito zaljubljenicima u zimske sportove, koji su u petočasovnim pauzama svakog dana mogli da uživaju na jedinstvenim kopaoničkim ski stazama. Većina učesnika Kongresa je odličnom ocenila organizaciju Kongresa. Pozitivnu atmosferu Kongresa dopunio je divan ambijent na 2000 m visine koji nije slučajno dobio ime „Sunčani vrhovi“.

FIRST INTERNATIONAL CONGRESS ORGANISED BY SERBIAN SOCIETY OF MECHANICS

Time for Science

First International Congress organised by the Serbian Society for Mechanics took place on Kopaonik from 10th to 13th April 2007 under the auspices of the Ministry for Science of the Serbian Government and the Serbian Engineering Chamber. The congress attracted well known scientists in theoretical and applied mechanics from Serbia and abroad.

Addresses to Congress were given by President of the Serbian Society of Mechanics (SSM) Dr Dragoslav Šumarac, and vice-president Dr Miloš Nedeljković, Dr Milisav Damjanović, president of Serbian Engineering Chamber Supervisory Board, MSc Bojan Milovanović, Raška Community president, MSc Stevan Šamšalović, president of Serbian Association of Engineers and Technicians. Dr John T. Katsikadelis, president of the Society of Mechanics of Greece conveyed greetings of the Society.

At the plenary sessions the participants were involved into results of the newest research of scientists from the country and abroad, through the lectures of academicians Dr Vladan Đorđević and Dr Teodor Atanacković, and guests, Prof. Katsikadelis from the Structural Analysis Institute, the Seismic Research School of Civil Engineering, National Technical University of Athens, and Dr Robin Tucker, professor at Lancaster University Bailrigg, Lancaster, UK. Scheduled plenary lecture of Dr Nikola Hajdin, the president of Serbian Academy of Sciences and Arts had not been given, since he had health troubles in the wake of the Congress.

The congress worked in sections, as in the former congresses organised by Yugoslav Society of Mechanics: general mechanics, fluid mechanics, mechanics of deformable bodies, and multidisciplinary problems in mechanics. Anyhow, as a novelty, in the scope of this Congress minisymposia had been organised. This years following topic minisymposia were: Numerical methods in structural analysis and the optimisation applying finite elements method; Biomechanics; Mathematical methods in mechanics; Geometry in physics; and Fracture mechanics.

More than 160 contributions from 250 authors were presented. With great effort the organisers printed the Proceedings and prepared a CD before the Congress. More than 80% of offered papers were presented at the Congress.

During the congress two round tables took place. The topic of first round table “Curricula of mechanics at Serbian universities in the light of Bologna Declaration” was interesting for the involvement of curriculum of mechanics based on Bologna regulations. Postures had exposed over 20 participants. A dominant issue said that changes had crippled the mechanics curricula and that it mechanics should return to the former state at technical faculties, being the basic knowledge of engineers. The second round table “Design and Construction of Highways in Greece: The case of EGNATIA ODOS Motorway in Northern Greece” had a professional content. Experience in highway construction presented prof. A. Liolios, the EGNATIA ODOS company vice-president.

It is to emphasize that Congress paid special attention to Milutin Milanković, the great name of Serbian science (article *'A Tribute to Milutin Milanković'* in the Proceedings).

The Society for Structural Integrity and Life (DIVK) had presented a minisymposium “Fracture mechanics.”

The Kopaonik weather was friendly to participants, especially to those devoted to winter sports that in the daily five-hour breaks had the opportunity to enjoy unique ski routes of Kopaonik. The majority of participants found that the Congress was well organised. The positive atmosphere of the Congress contributed to a splendid ambience at 2000 m altitude, not accidentally referred to as the “Sunny summits.”

<u>Autori – Authors</u>	<u>Naziv rada</u>	<u>Paper title</u>
S. Sedmak	Integritet konstrukcija – problem komponenti sa prslinom	Structural integrity – a problem of cracked components
M. Kirić, A. Sedmak, J. Lozanović	Faktori koji utiču na zavisnost J integral – CMOD za cilindre	The factors influencing the J integral – CMOD relationship for cylinders
M. Dobrojević, M. Rakin, N. Gubeljak, M. Zrilić, A. Sedmak	Model duktilnog rasta prsline u mismič zavarenom spoju	Ductile crack growth modelling in strength mismatched welded joints
D. Momčilović, I. Atanasovska, V. Grabulov	Ponašanje metala pri udarnom opterećenju	Behaviour of metals under impact loading
G. Kastratović	Uticaj interakcije vrhova prsline na faktor intenziteta napona	The effect of crack tips interaction on the stress intensity factor
D. Šumarac, D. Krajčinović, N. Trišović, M. Trajković	Ciklično savijanje grede profila pravougaone cevi	Cyclic bending of rectangular tube beam
Z. Cvijović, M. Rakin, M. Vratnica, I. Cvijović	Predviđanje žilavosti loma za kovanu leguru tipa 7000	Fracture toughness prediction in 7000 forging alloys
M. Shehu, P. Hubner, M. Cukalla, H. Shehu	Klasična ocena i ocena mehanike loma konstrukcijskog čelika velike žilavosti klase S355, S460	Conventional and fracture mechanics evaluation of structural steels with high toughness for S355, S460 grade steels
M. Burzić, Z. Burzić, J. Kurai	Uticaj promenljivog opterećenja na ponašanje legiranog čelika za visoke temperature	The effect of variable loading on the behaviour of alloyed steel for high temperature application
D. Burzić, Dž. Gačo, M. Burzić	Uticaj radnih uslova na mehaničke osobine visoko legiranog čelika X20 CrMoV 12 1	The effect of operating conditions on mechanical properties of high alloyed steel X20 CrMoV 12 1
Dž. Gačo, Z. Burzić, M. Burzić	Uticaj radne temperature i utrošenog veka na osobine visoko legiranog čelika X 20 pri promenljivom opterećenju	The effect of service temperature and experienced life on the properties of high alloyed steel X20 under variable loading
N. Gubeljak, J. Lozanović, A. Sedmak	Merenje deformacije vrha prsline i CMOD na licu mesta	Crack tip strain and CMOD in situ measurement
V. Golubović-Bugarski, D. Blagojević	Uticaj oštećenja konstrukcije na modalno ponašanje u FRF metodi	Structural damage effects on modal behaviour in FRF method
N. Filipović	Oštećenje korozijom procesne opreme u eksploataciji	In-service corrosion damages of process equipment
M. Ognjanović	Ocena pouzdanosti osovine vagona	Reliability assessment of the rail runner shafts
Lj. Milović, D. Momčilović, S. Putić, B. Grujić	Pojava prsline tipa IV u čeliku otpornom na puzanje	Type IV phenomena cracks in creep resisting steels
M. Kirić, A. Sedmak, J. Lozanović	Ocena uticaja termičke obrade i dužine prsline na integritet ploče	An estimation of effects of heat treatment and crack length on cracked panels integrity
D. Blagojević, R. Cvijić, V. Golubović-Bugarski, M. Todić	Uzroci gubitka integriteta čeličnog antenskog stuba	Causes for integrity losses of steel antenna columns
M. Petrović, B. Nedeljković, Z. Lekić	Primena numeričke metode za definisanje sile razaranja kamenog bloka	Numerical method application to define stone block destruction force

N. Trišović

NOVE KNJIGE – NEW BOOKS

TEHNOLOGIJA PROIZVODNJE ČELIČNIH KONSTRUKCIJA

Veliki je izazov i težak zadatak preneti tehnološka iskustva iz specifične proizvodnje u vidu pisane reči. Takvog zadatka se prihvatio autor i sa uspehom je preneo dugo vremena sakupljano iskustvo u tehnologiji i proizvodnji čeličnih konstrukcija. Upravo zbog specifičnosti materije koju ova knjiga obrađuje nema mnogo dostupne literature na srpskom jeziku, ali ni na stranim jezicima, pa će ova knjiga biti dragocena pomoć svima koji se upuste u složeni problem čeličnih konstrukcija, počev od projektnog zadatka preko razrade projekta, tehnoloških rešenja, izvođenja, montaže, ispitivanja i eksploatacije.

MANUFACTURING TECHNOLOGY OF STEEL STRUCTURES

It is a great challenge and difficult task to transfer technological experience from specific production in the form of written word. The author accepted this task and successfully transferred long time gathered experience in technology and manufacture of steel structures. Just due to specific matter treated in this book, there are no available references in Serbian language, but also not in foreign languages, so this book will be a valuable help to all involved in complex problems in steel structures, starting from project tenders, project elaboration, technological solutions, performance, assembly, inspection and service.

Optimalna tehnologija proizvodnje je ona koja omogućava da se ugovor/porudžbina završi prema ugovorenom terminu i ceni, tj. omogućava najekonomičniji rad i najviši nivo kvaliteta. Od gotovo istog značaja je organizacija proizvodnje, kao sastavni deo projekta tehnologije proizvodnje čeličnih konstrukcija, ali to je materija koju treba posebno posmatrati. U stvari, organizacija proizvodnje je, u najvećem broju slučajeva, najteži i verovatno najvažniji zadatak, ali ipak samo jedan deo proizvodnje, i zbog toga nije predmet razmatranja u ovoj knjizi. Ovde će se organizacija pominjati i navoditi samo gde i kada to bude potrebno, sa namenom da se razume proces tehnologije proizvodnje.

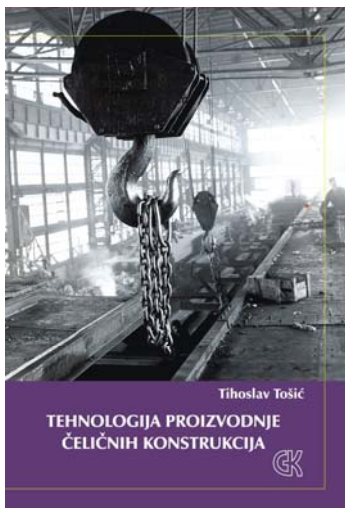
Nedovoljna pažnja posvećena tehnologiji proizvodnje čeličnih konstrukcija u praksi je delom posledica „projektantskog“ pristupa, koji se ogleda u stavu da je dovoljno da se za objekt pripreme crteži, a ostalo će majstori u fabrici da urade na osnovu tih crteža, „oni znaju kako se radi“. Pri tom se javljaju dve krajnosti. Govori se za tehnologiju proizvodnje da je „fabrička tajna“, što i jeste, ako se zasniva samo na obučeni majstora, ali na drugoj strani se smatra da to „svako zna i nema tu šta da se piše“!

Iskustvo je pokazalo da tehnologija proizvodnje čeličnih konstrukcija zahteva više pažnje i timskog rada u odgovarajućim fabričkim biroima za razvoj tehnologije proizvodnje i u razvojnim institutima. Zbog toga je ovakva knjiga neophodna kao uvod u pojedinačno razmatranje i izučavanje tehnologije proizvodnje čeličnih konstrukcija: mostova, hala, silosa, rezervoara, hidromehaničke opreme i transportnih uređaja. Svako od navedenih oblasti treba posebno pristupiti, radi maksimalnih efekata u proizvodnji.

Ova knjiga obrađuje kompleksne probleme izgradnje čeličnih konstrukcija u fazama projektovanja i tehnologije proizvodnje u fabricama, uključujući primenu računara u projektovanju (CAD) i primenu računara u proizvodnji (CAM). Određenim primerima iz prakse je posvećena odgovarajuća pažnja, jer mogu biti od koristi studentima građevine, projektantima koji u svom radu nisu bili u prilici da projektuju ovakve objekte, kao i izvođačima ovakvih i sličnih objekata.

Zbog toga je poglavlje o tehnologiji proizvodnje obogaćeno primerima izrade značajnih objekata iz naše zemlje i inostranstva: most „Gazela“; železnički most preko reke Save u Beogradu; most „Mratinje“; mostovi na prugama Sarajevo–Ploče i Beograd–Bar; montažno–demonožni mostovi; hala „Pionir“; višespratne zgrade; silosi GOŠA; hidromehanička oprema za hidroelektrane „Podpeč“; „Bajina bašta“ i „Derdap“.

Da bi se stekao uvid u značaj i obim ove knjige, ovde je data skraćena verzija sadržaja.



Optimal manufacturing technology is one enabling contract/ order completion within the contracted time and cost, i.e. enabling most economical work and highest quality levels. Of almost same importance is the production organisation as the extension of steel structures manufacturing technology project, issue which should be considered separately. Actually, production organisation is, in most cases, the most difficult and probably most important task, but only one single part of manufacturing, and for that it is not the subject of this book. Here the organisation will be mentioned and referred to only where and when it is necessary to understand the manufacturing technology process.

Scant attention devoted to steel structures manufacturing technology in practice is partly a consequence of “design” approach, reflecting in premise that it is sufficient to prepare drawings for the object, and workers in the factory will do

the rest based on these drawings, since “they know how.” Thus, two extremes occur. It is stated that manufacturing technology is a “factory secret,” what it is if based only on skilled workers, but on the other hand it is thought that “everybody knows and nothing needs to be written”!

The experience has shown that steel structure manufacturing technology requires more attention and team work in corresponding offices for technology development of the factory and in research institutes. Hence, the book of this profile is necessary as an introduction for individual consideration and the study of steel structures manufacturing technology as for: bridges, halls, silages, storage tanks, hydromechanical equipment, transports means. All these areas need special approach, for high effects in production.

This book treats the complex problem of steel structure construction in all: designing and manufacturing technology in factories, including computer applications in design (CAD) and computer applications in manufacture (CAM). Corresponding attention is paid certain examples from practice, since they should be usable to students of civil engineering, designers without experience in such objects, as well as for constructors of such and similar objects.

In that course the chapter on manufacturing technology has been enriched with examples of important object construction in the country and abroad: bridge “Gazela,” railroad bridge over Sava in Belgrade, bridge “Mratinje,” railroad bridges Sarajevo–Ploče and Belgrade–Bar, demountable bridges, “Pionir” hall, multi story buildings, “GOŠA” silos, hydromechanical equipment for hydroelectric plants “Podpeč,” “Bajina Bašta” and “Derdap.”

In order to get an insight on the importance and scope of this book, a short version of its contents are given below (in Serbian).

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Literatura

PRIOLOG

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Accelerated quality and reliability solutions

Lev Klyatis, Reliability Department Eccol, Inc., USA; Moscow State Agricultural University; State Enterprise TESTMASH, Eugene Klyatis, Engineering Consultant, USA

Drawing of real-world issues and with supporting data from industry, this book overviews the technique and equipment available to engineers and scientists to identify the solutions of the physical essence of engineering problems in simulation, accelerated testing, prediction, quality improvement, and risk during the design, manufacturing, and maintenance stages. For this goal the book integrates Quality Improvement and Accelerated Reliability/Durability/Maintainability/Test Engineering concepts.

The book includes new and unpublished aspects in quality: complex analysis of factors that influence product quality, and other quality development and improvement problems during design and manufacturing; in simulation: the strategy for development of accurate physical simulation of field input influences on the actual product – a system of control for physical simulation of the random input influences – a methodology for selecting a representative input region for accurate simulation of the field conditions; in testing: useful accelerated reliability testing (UART) – accelerated multiple environmental testing technology – trends in development of UART technology; in studying climate and reliability; in prediction: accurate prediction (AP) of reliability, durability, and maintainability – criteria of AP – development of techniques, etc.



Contents:

Accurate Physical Simulation of Field Input Influences on the Actual Product: introduction, the strategy for development of accurate physical simulation of field input influences, climate and reliability, the system of control for physical simulation of the random input influences, substitution of artificial media for natural technological media. Useful Accelerated Reliability Testing (UART) Performance: general review of accelerated testing methods, specific accelerated reliability testing technology, technology of step-by-step UART, accelerated multiple environmental testing technology, accelerated vibration testing, accelerated dynamometer testing, accelerated testing of farm and off-highway machinery, determination of the number of tested product, trends in the development of UART technology. Accurate Prediction of Reliability, Durability, and Maintainability on the Basis of UART Results: introduction, criteria of accurate prediction of reliability, durability, and maintainability by results of UART, development of techniques for product reliability prediction on the basis of UART results, prediction of system reliability from accelerated testing results of the components, durability prediction with consideration of expenses and losses, basic principles of maintenance prediction, Practical Accelerated Quality Development and Improvement in Design and Manufacturing: introduction, basic concepts of quality, basic concepts and practical strategy of accelerated quality improvement in manufacturing and design, implementation of accelerated quality improvement. Basic Concepts of Safety Risk Assessment: glossary and terms in quality and reliability solutions, safety aspects of risk control and assessment, relations to transportation problems current situation, basic principles, assessment of machine

limits, risk estimation, risk evaluation, hazard analysis, risk management; about safety, crash simulators, and compliance techniques; trends in the development of some safety problems solution, introduction to human factors.

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Elsevier Engineering

System Verification Proving the Design Solution Satisfies the Requirements

Jeffrey Grady, president: JOG Systems Engineering Inc., Adjunct Professor, University of California, San Diego, CA USA

An interdisciplinary, multi-stage-driven approach to the design and implementation of any large-scale or complex engineered product or service—has found its way from aerospace into general manufacturing as well as the services industry. It is particularly useful in such applications as software engineering, the bio- and medical industries, and large, multi-component projects like those found in energy-generation. Following on the author's previous book *System Requirements Analysis*, this new book will lay out the steps and procedures needed to implement a quality check of the system being proposed or designed...the "Verification" stage of a full systems engineering program.

Systems engineering usually begins with defining a product that will satisfy a customer need and then rationally building a set of required components, personnel, and financial resources. The testing and evaluating of a proposed design solution is known as Verification, and this will guide the systems engineer and his engineering and management team in setting up the detailed protocols for a step-by-step quality control check of each stage of a proposed system design.

Contents:

Part I: Setting the Stage; Introduction to System Development; System Requirements Analysis Overview; The Global Verification Situation; Part II: Item Qualification Verification; Verification Requirements; Top-Down Verification Planning; Item Qualification Test Planning Analysis; Item Qualification Test Implementation; Non-Test Item Qualification Methods Coordination; Item Qualification Verification Reporting; Item Qualification Verification Management and Audit; Item Qualification Verification Close-out; Part III: Item Acceptance Verification; Acceptance Test Planning Analysis; Other Acceptance Methods Coordination; Product Acceptance Verification Reporting; Product Verification Management and Audit; Part IV: System Test and Evaluation; System Verification Planning; System Test and Evaluation Management; Item and System Re-Verification; Part V: Process Validation and Verification; Process Validation; Process Verification; Part VI: Postscript; Verification and Systems Development Closure.

Readership: professional systems engineers; industrial engineers; manufacturing engineers; mechanical engineers; project managers; product managers

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ISBN10: 0-12-374014-2

Imprint: Academic Press

GBP 44.99

Elsevier Engineering

Fault Detection, Supervision and Safety of Technical Processes 2006, A Proceedings Volume from the 6th IFAC Symposium on Fault Detection, Supervision and Safety of Technical Processes

Hong-Yue Zhang (Editor), Department of Measurement and Control, Beijing University of Aeronautics and Astronautics, Beijing, China

Safe and reliable operation of technical systems is of great significance for protection of human life and health, environment, and of the vested economic value. Correct functioning of those systems has a profound impact also on production cost and product quality. Early detection of faults is critical in avoiding performance degradation and damage to the machinery or human life. Accurate diagnosis then helps to make the right decisions on emergency actions and repairs.

Fault detection and diagnosis (FDD) has developed into a major area of research, at the intersection of systems and control engineering, artificial intelligence, applied mathematics and statistics, and such application fields as chemical, electrical, mechanical and aerospace engineering. IFAC has recognized the significance of FDD by launching a triennial symposium series.

The SAFEPROCESS Symposium is organised every three years since the first held in Baden-Baden, 1991. SAFEPROCESS 2006, the 6th IFAC Symposium on Fault Detection, Supervision and Safety of Technical Processes held in Beijing, China, included three plenary papers, two semi-plenary papers, two industrial talks by internationally recognized experts and 258 regular papers, which have been selected out of a total of 387 regular and invited papers submitted.

Contents:

Fault Detection, Isolation and Identification: Model-based methods; observers, parity relations and identification; Statistical approaches; Fault modelling; Signal analysis; Design measures for robustness; Pattern recognition. **Computational Intelligence in Fault Diagnosis:** Expert systems; Fuzzy logic and rough sets; Artificial neural networks; Neuro-fuzzy approaches; Qualitative reasoning. **Design for Reliability and Safety:** Reliability and safety analysis; Probabilistic safety assessment; Testing and evaluation of safety systems; Safety standards and qualification; Safety evaluation tools. **Fault Tolerant Systems Design:** Fault prediction; Fault tolerant and fail-safe control; Design measures for fault tolerance; Reconfigurable and scalable control systems. **Maintenance and Repair:** Maintenance and repair strategies; Predictive maintenance; Operator support information systems; Life-cycle considerations; Human Factors. **Human factors in automation:** Human reliability analysis; Support for systems operation and decision making; Industrial safety management and safety culture; Economic, environmental and ecological aspects of fault diagnosis. **Industrial Applications and Case Studies:** Electrical, mechanical and electronic systems; Chemical and biomedical processes; Transportation, traffic and automotive systems; Power systems; Marine systems; Aeronautics and aerospace; Evaluation of benchmark problems.

Readership: for researchers and practicing engineers from a range of disciplines

Series: IPV – IFAC Proceedings Volume

Book/Paperback, Pages: 1576, Publ. date: 1 March 2007

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ISBN10: 0-08-044485-7

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Butterworth Heinemann

Nanotechnology – Materials, Systems, and Processes at the Nano-Scale

John Vacca, Renowned author of "The World's 20 Greatest Unsolved Problems"

Nanotechnology is the first of its kind. This text is monumental for both the professional and student looking to gain better insight into advance material science and engineering, high-perform-



ance systems and components. Its content offers a concise overview of the fundamental physics and chemistry of materials at the nano-scale. The author focuses text on most current information to supply a superior industrial research linked with all major classes of Nanomaterials. Using the same successful formula for searching out key authorities in various fields of scientific and engineering interest, the text will survey leading scientists and engineers to create a modest-sized, single-volume compendium on the latest advances in nano-scale materials, technologies for materials characterization and the newest applications for nano-materials.

Contents:

Introduction Dedication Acknowledgements Section I: The World of Nanomaterials Part I Types of Nanomaterials Chapter 1: Fundamentals of Nanotechnology and Nanomaterials Summary Chapter 2: Nanotubes Chapter 3: Nano-sized Particulates Chapter 4: Nanocomposites Chapter 5: Nano-Coatings Chapter 6: Ceramics Chapter 7: Polymers Chapter 8: Chemistry and Structure of Nanomaterials Chapter 9: Thermochemistry and Metrology of Interfacial Interactions Chapter 10: Particle Metrology and Nanoassembly Chapter 11: Mechanical Metrology for Small-Scale Structures Chapter 12: Nanoindentation Methods and Standards Chapter 13: Nanotribology and Surface Properties Chapter 14: Combinatorial Adhesion and Mechanical Properties: Axisymmetric Adhesion Testing Chapter 15: Combinatorial Adhesion and Mechanical Properties: Chapter 16: Gradient Reference Specimens for Advanced Scanned Probe Microscopy Chapter 17: Wet Nanomanufacturing Chapter 18: Characterization of Counterion Association with Polyelectrolytes: Novel Flexible Template Behavior Chapter 19: Metrology for Nanoscale Properties Chapter 20: Physical Properties of Thin Films and Nanostructures.

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Imprint: Butterworth Heinemann

EUR 44.95, USD 49.95

Academic Press

Nanostructured materials and nanotechnology

Hari Nalwa, Formerly of Hitachi Research Laboratory, Japan

This concise edition of Hari Singh Nalwa's Handbook of Nanostructured Materials and Nanotechnology fills the needs of scientists and students working in chemistry, physics, materials science, electrical engineering, polymer science, surface science, spectroscopy, and biotechnology. This version of the Handbook contains 16 chapters particularly focused on synthesis and fabrication as well as the electrical and optical properties of nanoscale materials. The Handbook will serve the objectives of providing state-of-the-art information on many aspects of nanostructured materials and emerging nanotechnology.

Contents:

1. Chemical Synthesis of Nanostructured Metals, Metals Alloys and Semiconductors 2. Nanocomposites Prepared by Sol-Gel Methods: Synthesis and Characterization 3. Low Temperature Compaction of Nanosize Powders 4. Semiconductor Nanoparticles 5. Colloidal Quantum Dots of III-V Semiconductors 6. Strained-layer Heteroepitaxy to Fabricate Self-assembled Semiconductor Islands 7. Hybrid Magnetic-Semiconductor Nanostructures 8. Carbon Nanotubes 9. Encapsulation and Crystallization Behavior of Materials Inside Carbon Nanotubes 10. Silicon-based Nanostructures 11. Electronic Transport Properties of Quantum Dots 12. Photorefractive Semiconductor Nanostructures 13. Linear and Nonlinear Optical Spectroscopy of Semiconductor Nanocrystals 14. Molecular and Supramolecular Nanomachines 15. Functional Nanostructures Incorporating Responsive Modules.

Hardbound, 834 pages, publication date: Aug-2001

ISBN-13: 978-0-12-513920-5

ISBN-10: 0-12-513920-9

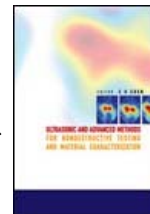
Imprint: Academic Press

USD 190, EUR 165

World Scientific

Ultrasonic and Advanced Methods for Non-destructive Testing and Material Characterization

Edited by **C.H. Chen** (University of Massachusetts Dartmouth, USA)



Ultrasonic methods have been very popular in nondestructive testing and characterization of materials. This book deals with both industrial ultrasound and medical ultrasound. The advantages of ultrasound include flexibility, low cost, in-line operation, and providing data in both signal and image formats for further analysis. The book devotes 11 chapters to ultrasonic methods. However, ultrasonic methods can be much less effective with some applications. So the book also has 14 chapters catering to other or advanced methods for nondestructive testing or material characterization. Topics like structural health monitoring, Terahertz methods, X-ray and thermography methods are presented. Besides different sensors for nondestructive testing, the book places much emphasis on signal/image processing and pattern recognition of the signals acquired.

Contents:

Ultrasonic Methods: Fundamentals Models and Measurements for Ultrasonic Nondestructive Evaluation Systems (LW Schmerr Jr.); Integrated and Flexible High Temperature Piezoelectric Ultrasonic Transducers (C-K Jen & M Kobayashi); Real-Time and In-Line Ultrasonic Diagnostics of Polymer Processes (C-K Jen et al.); Guided Wave Based Nondestructive Testing: A Reference-Free Pattern Recognition Approach (H Sohn et al.); Acoustic Nonlinear Imaging and Its Application in Tissue Characterization (D Zhang & X-F Gong). **Advanced (Other) Methods:** Electromagnetic NDE Techniques for Materials Characterization (BPC Rao et al.); Terahertz NDE for Aerospace Applications (RF Anastasi et al.); Large Area Time Domain Terahertz (T-Ray) Imaging Non-Destructive Evaluation for Security and Aerospace (D Zimdars et al.); Active Infrared Thermography Techniques for the Nondestructive Testing of Materials (C Ibarra-Castaneda et al.); Quantitative Evaluation of Emerging Infrared Thermography Technologies for Aerospace Applications (J DiMambro). **Signal and Image Processing in NDE:** Computational Intelligence Methodologies for Non-Destructive Testing/Evaluation Applications (M Cacciola et al.); Split Spectrum Processing and Automatic Flaw Detection (KD Donohue); Homomorphic Deconvolution of Ultrasonic Images (R Jirik & T Taxt); and other papers.

Readership: academics, practitioners, researchers, physicists, engineers and computer scientists.

684pp Pub. date: May 2007

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Imprint: World Scientific

USD 152, GBP 83

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51 Jarić Jovo		

KALENDAR SKUPOVA – 2007 – CALENDAR OF EVENTS

Naslov – Title	Datum – Date	Mesto – Place	Obaveštenja – Information
3 rd International Conference on Nanomaterials and Nanomanufacturing	17-18. Dec.	Dublin, Eire	www.iom3.org/events/1207_nano.htm
The 5 th International Conference on Structural Integrity of Welded Structures	21-22. Nov.	Timisoara, Romania	www.isim.ro
25 th CADFEM Users' Meeting - Internationale FEM Technologietage & 2007 German ANSYS Conference	21-23. Nov.	Dresden, Germany	www.usersmeeting.com/index.21.0.html
International Conference on Ultrafine Grained and Nanostructure Materials (UFGNSM 2007)	17-18. Nov.	Teheran, Iran	www.eng.ut.ac.ir/ufgnsm07/
Seventh International ASTM/ESIS Symposium on Fatigue and Fracture Mechanics	14-16. Nov.	Tampa, Florida, USA	www.astm.org/JAI
Commercialization of NanoMaterials 2007	11-13. Nov.	Pittsburgh, Pennsylvania, USA	www.tms.org/Meetings/specialty/nano07/
2007 ASME International Mechanical Engineering Congress and Exposition	10-16. Nov.	Seattle, WA, USA	www.asmeconferences.org/Congress07
4 th Workshop 'NDT in Progress', International Conference 'NDE for Safety', 'Defektoskopie 2007' and NDT Expo	5-9. Nov.	Prague, Czech Republic	www.cndt.cz/endtd07/
Experimental Vibration Analysis for Civil Engineering Structures (EVACES' 07)	24-26. Oct.	Porto, Portugal	www.fe.up.pt/evaces07
IV Pan-American Conference for NDT	22-26. Oct.	Buenos Aires, Argentina	www.aaende.org.ar/corende_2006/pre/6corende_e/6corende_e.htm
Failure of Engineering Materials & Structures FEMS(2007)	22-23. Oct.	Taxila, Pakistan	E-mail: FEMS2007@uettaxila.edu.pk
International Conference on Health Monitoring of Structure, Material and Environment - NMSME	16-18. Oct.	Nanjing, China	hmsme2007@seu.edu.cn
Engineering Structural Integrity ~ Research, Development and Application	15-19. Oct.	Beijing, China	http://esia9.buaa.edu.cn fesu@fesi.org.uk
6 th International Conference on NDE in Relation to Structural Integrity for Nuclear and Pressurised Components	8-10. Oct.	Budapest, Hungary	www.6thnde.com/
Damage to Power Plant/CCGTs due to Cyclic or Two Shifting Operation	27-28. Sep.	London, UK	www.etdl.co.uk
Joints in Aluminium Structures	26-28. Sep.	Moscow, Russia	www.alusil.net
ISEC-4: Fourth International Structural Engineering and Construction Conference	26-28. Sep.	Melbourne, Australia	www.materialsaustralia.com.au/ISEC-4/
Cement and Concrete Science	17-18. Sep.	London, UK	www.iom3.org/events/0907_cement.htm
International Conference on Advanced Technology in Experimental Mechanics 2007 (ATEM'07)	12-14. Sep.	Fukuoka, Japan	www.congre.co.jp/atem07/
Ninth Yugoslav Materials Research Society Conference YUCOMAT 2007	10-14. Sep.	Herceg Novi, Montenegro	www.yu-mrs.org.yu E-mail: its@itm.sanu.ac.yu
SEMC 2007: The Third International Conference on Structural Engineering, Mechanics and Computation	10-12. Sep.	Cape Town, South Africa	www.semc2007.uct.ac.za
IX International conference on Computational Plasticity: Fundamentals and Applications	5-7. Sep.	Barcelona, Spain	http://congress.cimne.upc.es/complas07/frontal/default.asp
COMS2007: MANCEF's Commercialization of Micro and Nano Systems Conference	2-6. Sep.	Melbourne, Vic, Australia	www.mancef-coms2007.org/
Microreliability and Nanoreliability in Key Technology Applications	2-5. Sep.	Berlin, Germany	www.microreliability2007.com bernd.michel@izm.fraunhofer.de
4 th International Very High Cycle Fatigue Conference (VHCF-4)	19-22. Aug.	Ann Arbor, Michigan, USA	www.tms.org/Meetings/Specialty/VHCF/home.html
ICSAS 07: Sixth International Conference on Steel and Aluminium Structures	24-27. Jul.	Oxford, UK	www.brookes.ac.uk/go/icsas07
2007 ASME Pressure Vessels and Piping - CREEP8 Conference	22-26. Jul.	San Antonio, Texas, USA	www.asmeconferences.org/pvp07
6 th International Conference on Fracture and Damage Mechanics	17-19. Jul.	Madeira, Portugal	http://fdm.engineeringconferences.net
6 th International Congress on Industrial and Applied Mathematics (ICIAM07 / GAMM Annual Meeting 2007)	16-20. Jul.	Zürich, Switzerland	www.iciam07.ch/index



RADOVI OBJAVLJENI U 2006.***Integritet i vek konstrukcija 1-2/2006****S. Sedmak*

Određivanje deformacija i napona ispitivanjem indirektnim metodama modeliranja

S. Ristić

Holografska interferometrija i njena primena u beskontaktnim ispitivanjima

G. Mandić

Osnovni principi infracrvene termografije

J. Kurai, B. Aleksić

Termografija u kontroli opreme u eksploataciji

Z. Burzić, S. Sedmak

Akustična emisija – aktivna metoda ispitivanja bez razaranja

M. Kirić

Ultrazvučno ispitivanje sa C-slikom – Primena na cevovode i zavarene spojeve

A. Popović, M. Marković, B. Panić, M. Nikolić

Sakupljanje i obrada podataka

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Primena stereometrijskog merenja na integritet konstrukcija

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Rad Društva za integritet i vek konstrukcija (2001-2006)

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N. Anđelić, V. Milošević-Mitić

Optimizacija tankozidne konzole pri ograničenom uvijanju

R. Vasić

Direktiva 89/106/EEC i harmonizovani standardi u građevinarstvu

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Application of Stereometric Measurement on Structural Integrity

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Activities of the Society for Structural Integrity and Life

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Optimization of a Thin-Wall Cantilever Beam at Constrained Torsion

R. Vasić

Directive 89/106/EEC and harmonized Standards in Civil Engineering

**O klasifikaciji članaka u časopisu
„Integritet i vek konstrukcija“**

Od glavnog i odgovornog urednika

Poštovani autori i čitaoci,

Počev od ovog broja (Vol. 7, No 1, 2007) našeg časopisa, klasifikacija članaka će slediti Dokument *COMARC/B, Dodatak F.6 Tipologija dokumenata/dela – Definicije i preporuke*, dostupan u arhivama Narodne biblioteke Srbije, a koji je znatno proširen u poređenju sa prethodno korišćenim uputstvom. Stoga, molimo sve autore da ubuduće u pripremama svojih radova obavezno predlože klasifikaciju članka. Recenzenti, urednici rubrika i naučna redakcija časopisa će to imati u vidu pri konačnom oblikovanju članaka.

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**On the classification of papers published in journal
“Structural Integrity and Life”**

From the editor-in-chief

Dear authors and readers,

Starting from this issue (Vol. 7, No 1, 2007) of our journal, the classification of papers will follow according to Document *COMARC/B, Dodatak F.6 Tipologija dokumenata/dela – Definicije i preporuke*, accessible from the archives of the National Library of Serbia which is appreciably extended, compared to formerly used instructions. Thereupon, we kindly ask all authors to henceforth necessarily specify a suggested classification when submitting papers. This will be considered by reviewers, column editors and the scientific board upon final preparation of publication.

Altogether we apologize to Radomir Vasić, author of “*Directive 89/106/EEC and Harmonized Standards in Civil Engineering*” and to our readers for the erroneous classification of this paper in Vol. 6, No 3, 2006.