EVENTS

European Structural Integrity Society (ESIS) TC1 Autumn Meeting 5-6 December 2012 Workshop on the "Structural Integrity of Weldments" held and hosted by Fraunhofer IWM Freiburg, Germany

The ESIS TC1 has revived its activities 2 years ago, with new chairmen, Prof. Uwe Zerbst. DIVK has also revived its activities in TC1 starting with the autumn meeetin in Freiburg. Serbia was represented by Prof. Aleksandar Sedmak, who has presented the paper "Ductile Fracture Behaviour of the HSLA Steel Welded Joint". A complete list of presented papers:

- Crack Tip Constraints in Weldments and their Effect on Ductile Crack Growth by Z. Zhang
- Ductile Fracture Behaviour of the HSLA Steel Welded Joint by A. Sedmak, B. Younise, M. Rakin, B. Medjo, N. Gubeljak
- Mismatch Limit Load Solutions for Circumferential Cracked Pipes by S.-H. Kim, J.-J. Han, Y.-J. Kim
- Compensating Uneven Fatigue Precrack Front in Linear Elastic Fracture Mechanic Testing by J. Pilhagen, R. Sandström
- The Combined Effects of Residual Stress and Warm Prestressing on Cleavage Fracture in Steels by D. van Gelderen, J. Booker, D.J. Smith
- Assessment of Partial Penetration and Full Thickness Welding in Francis Runners by Fracture Mechanics Approach by W. Weber1, L. Chen, U. Seidel, J. Koutnik
- FSW–Most Influencing Welding Parameters and their Interaction with Mechanical Properties of Different Joint Types by A.C.F. Silva1, D.F.O. Braga1, M.A.V. de Figueiredo, P.M.G.P. Moreira
- A Finite Element Application for Simulation of Arc Welding Processes by J. García, C. Rodríguez, J. Belzunce, A. Fernández-Canteli
- Experimental Characterisation of Fatigue Resistance of Pipe-to-Plate Welded Joints under Torsion Loading by L. Bertini, F. Frendo
- Fatigue Crack Growth and Retardation Effects After Overloading Cycles in Welds of an X52 High Pressure Pipeline Steel by I. Černý
- Effect of Welding Defects on Plastic Behaviour and Fatigue Lifetime of Friction Stir Welded Al-Cu-Li Alloy by T. Le Jolu, T.F. Morgeneyer, A.F. Gourgues
- On the Structural Integrity Assessment of Heterogeneous Welded Joints by P. Konjatić, D. Kozak, N. Gubeljak
- Engineering Fatigue Analysis of Welded Joints with Stress Raisers by H.-J. Schindler
- Fracture Mechanics Based Treatment of Residual Stress in Welds by K. Nikbin
- Determination of the Interaction between Primary and Secondary Stresses Using an Idealised Model by G. Horne, D. Smith
- Treatment of Primary and Secondary Stresses in Fracture Assessment with and without Elastic Follow-Up by R.A. Ainsworth
- Consideration of the Residual Stress Relief in Fatigue Assessment of Welded Components by I. Varfolomeev, D. Siegele, S. Moroz, M. Brand, J. Baumgartner
- Fracture and Crack Propagation in Weldments – A Fracture Mechanics Perspective by U. Zerbst

New Trends in Fatigue and Fracture – NT2F13 13-16 May 2013, Moscow, RUSSIA

The Congress NT2F was founded in 2000 by the Laboratoire de Fiabilité Mécanique (Metz) as an annual meeting of the "Without Walls European Institute on Fatigue and Fracture" (WWIFF). Since then it has been organised regularly in different countries, including Serbia (2010).

The NT2F13 congress, 13th International Conference on New Trends in Fatigue and Fracture, is intended to be a forum to discuss the present trends on fracture mechanics which consider the actual geometry of defects in light of notch fracture mechanics and new approaches based on mesomechanics and incremental plasticity, to offer new interpretations of loading mode and geometrical effects on fracture toughness. Fatigue and fracture of innovative metallic materials such as titanium alloys, as well as studies on nano, composite and biomaterials certainly represent a challenge for the scientific community, because of the variety of possible new research topics that could be developed. In this sense, the NT2F13 Conference will be also an excellent place for reviewing critical design codes in the view of the increasing complexity of the engineering scenarios. The NT2F13 web page is available at http://nt2f.polytech-lille.net .

Conference topics:

I. Multi-scale Models and Criteria

II. Characterization of Crack/Notch Tip Stress Fields

III. Structural Integrity and Engineering Safety

IV. Fracture Mechanics and Fatigue in Design and Technology

14th Symposium on Experimental Stress Analysis and Materials Testing, on the occasion of 90 years of Strength of Materials Laboratory from POLITEHNICA, University of Timisoara, 23–25 May 2013

In 2013, the Strength of Materials Laboratory from POLITEHNICA University of Timisoara will reach its 90th anniversary. Over the years the Laboratory has developed considerably and now represents one of the main facilities in the West of Romania for Strength of Materials research and teaching. POLITEHNICA University of Timisoara is proud to invite you to participate at the 90 years celebration of the Strength of Materials Laboratory. On this occasion an International Symposium of Romanian Association of Experimental Stress Analysis will be organised devoted to research in all fields of stress analysis with a focus on experimental and numerical aspects, material testing, fracture, fatigue, biomechanics, vibration and noise fields. The conference will feature a selected number of highly qualified invited guest speakers who will present lectures of key fields of present and future research activities.

Conference Venue: POLITEHNICA University of Timisoara, Faculty of Mechanical Engineering, Department Mechanics and Strength of Materials, Blvd. M. Viteazu, Nr. 1, Timisoara 300222

Tel. +40.256.403577/ Fax +40.256.403523

e-mail: msvina@mec.upt.ro , faur@mec.upt.ro

The 10th International Conference on Structural Integrity of Welding Structures – ISCS13 Timisoara, 11-12 July 2013

The National R&D Institute for Welding and Material Testing ISIM-Timisoara is organising the International Conference "Structural integrity of welded structures" – ISCS13 (11-12 July 2013 Timisoara, Romania).

The proceedings will be published in "Advanced Materials Research", an ISI periodical, indexed by Elsevier: SCOPUS, Ei Compendex, Cambridge Scientific Abstracts, ISI (ISTP, CPCI, Web of Science). The main topics of the conference are:

- Prospects in material science, nanomechanics, nanomaterials, nanotechnology, computer simulation paradigm;
- Advanced materials and joints, mechanical characterization;
- Quantitative non-destructive testing;
- Fracture mechanics;
- Materials damage under time-dependent-actions, fatigue, creep, corrosion, irradiation;
- Failure risk assessment, probabilistic methods;
- Quality management of materials and welded joints;
- Diagnosis, mechanical failure analysis.

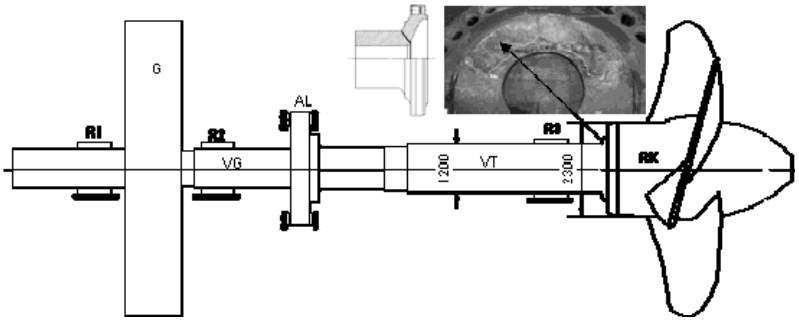
The conference website: www.iscs.ro

Timisoara, Victoriei Square, Orthodox Church

DIVK FORUM – PRIKAZ

DIVK forum održan 13. decembra 2012: Dr Miodrag Arsić: Uticaja režima opterećenja i radne sredine na zamor delova turbinske i hidromehaničke opreme hidroelektrana

Na deset hidro-generatorskih jedinica „Đerdap 2" ugrađene su horizontalne Kaplan turbine, nominalne snage 28 MW, izrađene u Rusiji. Posle 163.411 časova rada (približno 22 godine) došlo je do loma vratila turbine agregata A6 u zoni velike koncentracije napona, na mestu prelaznog radijusa R80 između prirubnice i glavčine radnog kola. U radu su dati rezultati analitičkog proračuna čvrstoće vratila turbine, uzevši o obzir veliku koncentraciju napona i uticaj korozione sredine i rezultati eksperimentalnih ispitivanja na zamor materijala vratila. Izvršena su standardna ispitivanja na zamor zatezanjem glatkih epruveta sa konstantnom amplitudom opterećenja da bi se utvrdile zamorne osobine osnovnog materijala i ispitivanja savijanjem epruveta sa zarezom u cilju utvrđivanja parametara mehanike loma, odnosno, zavisnosti brzine rasta prsline *da/dN* i opsega delujućeg faktora intenziteta napona ΔK. Utvrđeno je da su vrednosti napona u uticajnoj zoni vratila iznad dozvoljenih, što je dovelo do pojave većeg broja prslina usled zamorne korozije i da je jedna od njih svojim stabilnim ili nestabilnim rastom izazvala lom vratila, a time i otkaz turbine. Takođe, poređenjem broja ciklusa opterećenja do dostizanja kritične dužine prsline i broja ciklusa opterećenja do loma vratila došlo se do zaključka da je antikoroziona zaštita tokom godina usporavala proces nastajanja inicijalnih prslina.



BOOK PROMOTIONS

TENSOR MODELING OF THE GEOMAGNETIC FIELD
Alexey A. Tikhonov (Алексей А. Тихонов)

Publishing house: LAP LAMBERT Academic Publishing
http://www.lap-publishing.com
Pages: 100, Language: Russian

Content: Mathematical modeling of the dynamics of Artificial Earth Satellites (AES), interacting with Earth's Magnetic Field (EMF), requires a prior solution to the problem of modeling of the EMF, characterized by a complex structure and the absence in the final form of the dependence of the magnetic induction on the coordinates of the near-Earth space. Analysis of this issue and the subject of this monograph offers a tensor-based analytical modeling methodology for capacity building, and the gradient induction EMF induction and subsequent choice of a suitable model for successful analytical inventories and/or numerical study of dynamic problems of the satellite. Along with the possibility of justification of the tensor approach to multipole modeling inventories, they are concise writing and ease of use in the computer algebra systems, the work contains ready-made algorithms and programs. The results obtained in equal measure can be applied to describe the Earth's gravitational field and gravitational and magnetic fields of other planets. Therefore, the monograph is intended not only for readers concerned with analysis of the dynamics of the satellite, but also for all those interested in mathematical modeling of planetary physical fields.

DR BILAL DOGAN, in Memoriam, 1956 to 2012

Bilal's untimely death was a great shock to virtually all of the DIVK and ESIS community members since we did not realise that he had been seriously ill. The international editorial board of our journal *Structural Integrity and Life* has lost a valuable member. Bilal's funeral was held in Waldfriedhof, Geesthacht, Germany, and attended by over 100 people.

We acknowledge Bilal's activities in ESIS, where he joined the Executive Committee of the HTMTC (High Temperature Mechanical Testing Committee, of the ESIS TC11) just over 12 years ago. He has been an active member achieving significant improvements in testing techniques in his specialist activity area. He led the Weldments HTMTC Working Group which provided a significant input into the development of some ASTM & ISO Standards.

Dr. Bilal Dogan was a native of Turkey and received his early education at the Middle East Technical University in Ankara. He received his PhD in Metallurgical Engineering at Manchester University in England and subsequently moved to Ottawa, Ontario in Canada, as a Post-doctoral Fellow at the National Research Council of Canada. In 1986, he moved to GKSS, Germany, as the Head of the Section on High Temperature Materials Research.

Bilal demonstrated great dynamism and enthusiasm for his work on high temperature materials and made a significant contribution to the sector. He will be sadly missed by his many friends and colleagues.

Hereafter, we present a list of Dr Bilal Dogan's major achievements during his career:

1984-1986 Canadian Ministry of Energy, Metals Tech. Labs. (MTL)-CANMET, Ottawa; Canada: Research Fellow, Trans-Canadian Pipelines Project,

1986-2007 GKSS Research Centre Geesthacht, Germany, Group Head, High Temp. Materials and Component Life Assessment: HT Materials and Weldments; Defect and Life Assessment, Deformation and Fracture Mechanics

1992/1993-2007 Assoc. Prof./Prof.: Teaching Engineering Materials and Fracture Mechanics

1994-2007 Independent Consultant: High Temp. Materials and Engg. Applications

1999-2007 European Commission (EC) - Brussels: European Projects Evaluator.

2002-2007 Registered Auditor with EC.

2006-2007 Member of German Hydrogen Energy Strategy Council.
2006-2007 Member of German Industrial Committee on Boilers and Steam Turbines

2008-Date EPRI, Charlotte, NC, Senior Project Manager, Major Component Reliability, Sector Generation: Materials, Boilers and Piping, and Steam Turbines and CC Gas Turbines. Projects worked on: Advanced materials, C-F, Cycling plant, Development of SPT for in-service Component Condition Assessment.

2009-Date Adjunct Professor, Mech. Engg. & Engg. Sci. Dept. (MEES), Univ. NC at Charlotte (UNCC), Charlotte, NC.

2009-Date Member of Advisory Board, Engineering Technology & Construction Management, UNCC, Charlotte, NC.

Professional activites:

– Member of Versailles Project on Advanced Materials and Standards (Canada, France, Germany, Italy, Japan, UK, USA, EC); VAMAS TWA25 Core Group(ESIS, ASTM, JSPS): C/F Testing and Assessment of Crack Growth in Components and former activities, and TWA31 on Weld Residual Stresses,

– USA Coordinator of VAMAS TWA31: C/F Testing and Assessment of Crack Growth in Components, and Residual Stresses.

– Member of ASTM, ASME; Task Group Leader and Member of Codes and Standards.

– ASME PVP Conferences; Annual Sessions Organizer: Creep and C-F, Miniature specimen testing, Corrosion and SCC, European HT Codes and Standards, International HT Codes and Standards.

– Member and Working Group leader, European Structural Integrity Society (ESIS) TC 11- UK HTMTC: Drafting a Code of Practice for High Temperature Testing of Weldments for ISO standardization via Int. Institute of Welding (IIW),

– Member of European Creep Collaborative Committee (ECCC),

– Commission.XI, Sub Comm. Chair on Hydrogen Effects on Welded Structures. International Institute of Welding (IIW).

Professional Membership: member of ASTM (E08), ASME (SC1, 3TG-ETD, XI), ESIS and IIW.

Publications: over 130 published scientific papers, edited journal, and books.

Awards:

1- ESIS TC11 Citation, Code for HT Testing Weldments, 2005.

2- ASME Certificate of Recognition, Codes and Standards, 2009.

3- ASME Certificate of Recognition, Division PVP, Codes and Standards, July 29, 2009.

4- ASTM Award of Appreciation for ASTM Standard E2714-09. Nov. 17, 2010.

5- ASTM Award of Appreciation for ASTM Standard E2760-10. Nov. 17, 2010.

Organized International Conferences:

International Conferences WELDS2005 (Geesthacht, Germany),

WELDS2009 (Sanibel Island, FL), ASTM International Symposium on Creep-Fatigue Interaction, 2010 (San Antonia, TX),

International Experts Group Leadership:

1) Int. C-F Experts Group,

2) Int. SPT (Small Punch Testing) Experts Group.

Made contributions to, in areas of SI activities:

- Materials and Weldments Testing and Analysis,

- Condition Assement and Failure Analysis of in-service Components,

- Development of Concepts for Cycling of Aged Power Plants,

- Combined Cycle Gas Plant Component Failures.

- Codes and Standards.

Made contributions to SI activities:

- Over 30 years of experience made in UK, Canada, Germany and US, with established knowledge of materials and metallography, deformation and failure assessment, fracture mechanics and structural integrity of in-service components,

- Project development in these subject areas and Project management.

- Supported SI personel developing projects and running the projects in subject areas.

- Networking and coordination nationaly and internationaly, particularly European expertise and experience on materials and component assessment of fossil and nuclear power plants.

- Organized International Conferences and Lecturing.

- Attended codes and standard meetings of ASME, ASTM and IIW to contribute to SI's high standing in the areas of materials, component failure avoidance and structural integrity of engineering systems.