

Integrating Structural Analysis, Risk & Reliability

4th International ASRANet Colloquium
Crowne Plaza Athens City Centre
50 Mihalakopoulou Avenue
Athens, 11528 Greece
25 – 27th June 2008



PRELIMINARY PROGRAMME



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Preliminary Programme

Keynote Papers

'Reliability-based Codes in the United States: Challenges to Professional Engineering Practice' *Bruce Ellingwood, Georgia Institute of Technology, USA*

'Limit States Design and Structural Reliability: The Canadian Context' *Ricardo Foschi, University of British Columbia, Canada*

'Reliability-based Analysis of Codified Design Allowing for Production Quality' *Milan Holicky, Czech Technical University in Prague, Czech Republic*

'Wave Loads for Ship/Marine Structures' *Jorgen Juncher Jensen, Technical University of Denmark, Denmark*

'Recent Advancements and Future Trends of Nonlinear Structural Mechanics for Ships and Offshore Structures' *Jeom Kee Paik, Pusan National University, Korea*

'Multiscale Fracture of Random Heterogeneous Materials' *Sharif Rahman, University of Iowa, USA*

Reliability-based Design & Optimisation

'Reliability Based Risk Optimisation' *André T. Beck and Camila Verzenhassi, University of São Paulo, Brazil*

'From Prescriptive to Probabilistic Reliability Assessment Methods' *Pavel Marek and Vít Křivý, VŠB – Technical University of Ostrava, Czech Republic*

'Failure Event Analysis and Optimisation of a Submerged Underwater Critical Structure against Non Deterministic Current Loading Conditions with the use of the Finite Element Method' *D. Mazarakos, Christos Derdas and V. Kostopoulos, University of Patras, Greece*

'Two Step Topology and Scantling Optimisation of the Ropax Ship Based upon Reliability Based Criteria' *Vedran Zanic, M. Stipcevic and B. Bedic, University of Zagreb, Croatia*

'Reliability Based Design Optimisation: An Application to the Buckling of Imperfect Shells' *Vincent Dubourg, Claudine Noirfalise and Jean-Marc Bourinet, Institut Francais de Mécanique Avancée, France*

'Reliability and Robustness-Based Design Optimisation (RRBDO)' *Dimos C. Charmpis, University of Cyprus*

System Reliability

'Does the Operation Safety of Energy Industry Exhibit Self Organised Criticality?' *Sirous Yasseri, KBR, UK*

'Reliability Analysis of Lifeline Network using Markov-Chain Monte Carlo Simulation' *Hitoshi Furuta, Kenta Miyake, Tadanobu Sato and Isao Tsukiyama, Kansai University, Japan*

'Development of Abnormal Diagnosis and Control System for Standpipe Network using Artificial Immune System' *Masashi Yamawaki, Wataru Shiraki and Hitoshi Inomo, Kagawa University, Japan*

'Evaluating System Reliability of Slop Stability via Importance Sampling Technique' *Jianye Ching, National Taiwan University of Science and Technology, Kok-Kwang Phoon, National University of Singapore, Singapore*

'System Reliability Analysis of Ship Transverse Frame' *P. Radha and Purnendu K. Das, Universities of Glasgow & Strathclyde and F. Cheng, Lloyd's Register, UK*

Response to Accidental Loads

'FEA of Flush End-Plate Bare Steel Connection under Fire Loading' *Adeeb Rahman, Ali Shrih, University of Wisconsin-Milwaukee; Khalifah Al-Jabri, Sultan Qaboos University and Rami Hawileh, American University of Sharjah*

'A Probabilistic Risk Assessment Approach to Decision-Making for Explosively-Loaded Ship Panels' *Spiro Pahos and Purnendu K. Das, Universities of Glasgow & Strathclyde, UK*

'First Principles Collision Risk Analysis of a ROPAX Vessel' *George Mermiris, Dimitris Konovessis & Dracos Vassalos, Universities of Glasgow & Strathclyde, UK*

'Limit State Performance of Double Hull Oil Tanker Structures Against Collisions: IACS Pre-CSR Design versus CSR Design' *Jeom Kee Paik & Jae Hyung Park, Pusan National University, Korea and Emmanuel Samuelides, University of Athens, Greece*

'Security Risks and Safety Hazards for Building Facades' *Mark G. Stewart, Michael D. Netherton and P. Sing-Sang, University of Newcastle, Australia*

'Design Methodologies for Design of Ship Structures against Collision and Grounding' *Manolis Samuelides, National Technical University of Athens, Greece and Jeom Kee Paik, National Pusan University, Korea*

'Progressive Collapse Risks in LPS Buildings from Internal Gas Explosions' *T.D.G Canisius, Scott Wilson plc, UK*

Fatigue & Fracture

'Weight Function for a Crack in an Orthotropic Medium under Shear Loading' *Subir Das, BP Poddas Institute of Management & Technology, India*

'Estimation of Crack Propagation in a Passenger Ship's Door Corner' *Mika Bäckström and S. Kivimaa, VTT Technical Research Centre of Finland*

'Interaction of Three Interfacial Griffith Cracks under Anti-plane Shear' *S. Chakraborty and Subir Das, BP Poddas Institute of Management & Technology, India*

'Reliability Assessment of Structures Subjected to Fatigue Fracture' *Nicolas Gayton and Maurice Lemaire, Institut Français Mécanique Avancée, France*

'Probabilistic approach to fatigue damage of steel bridges' *Milos Rieger and Pavel Marek, Technical university of Ostrava, Czech Republic*

'FORM Sensitivities to Correlation: Application to Fatigue Crack Propagation Based on Virkler Data' *Jean-Marc Bourinet and Maurice Lemaire, Institut Français Mécanique Avancée, France*

'The Effect of Crack Geometry on Time-Variant Reliability of Tubular Components' *Neill Renton, W.F. Deans and Michael J. Baker, University of Aberdeen, UK*

'Simulation of the Behaviour of Fatigue Cracks: A Tool for Inspection Decision Making on a Ship's Deck Beam' *Virginie Boutillier, Michelle Serror and Guy Paramentier, Bureau Veritas, France*

'A Response Surface Method Approach to Fatigue Reliability of Ship Structures' *L. Yu, Lloyd's Register and Purnendu K. Das, Universities of Glasgow & Strathclyde, UK*

'An RV Approach for the Analysis of Fatigue Crack Growth with NASGRO Propagation Equation' *Stefano Beretta, M. Carboni and A. Villa, Politecnico di Milano, Italy*

Reliability of Deteriorating Structures

'Reliability of Reinforced Concrete Bridge Decks with Respect to Ingress of Chlorides' *Petr Konecny, Technical University of Ostrava, Czech Republic and Paul J. Tikalsky, University of Utah, USA*

'Cracking Criteria for Hardening Concrete Structures Analysed by a Probabilistic Approach' *HWM van der Ham, EAB Koenders and K. van Breugel, Delft University of Technology, Greece*

'Probabilistic Evaluation of Deflections and Natural Frequencies of RC Beams Subject to Corrosion' *Dimitri V Val, Herriot Watt University, UK and Leonid Chernin, Isreal Institute of Technology*

'Time-Dependent Reliability of RC Beams Considering Variability in Degradation Due to Reinforcement Corrosion' *Yasuhiro Mori, Nagoya University, Japan and Kapilesh Bhargava & A.K. Ghosh, Bhabha Atomic Research Centre, India*

Structural Health Monitoring

'Bridge Management using Structural Health Monitoring' *Hitoshi Furuta, Kohei Yoshida, Hiroshi Hattori and Takuya Ohama, Kansai University, Japan*

'The Combined Use of Vibration, Acoustic Emission and Oil Debris Sensor Monitored Data coming from Rotating Machinery for the Development of a Robust Health Monitoring System' *T.H. Loutas, J. Kalaitzoglou and V. Kostopoulos, University of Patras, Greece*

'Slow and High Speed Structural Monitoring of Suspension Bridges' *Stefania Arangio, Konstantinos Gkoumas and Franco Bontempi, University of Rome, Italy*

'Use of Structural Monitoring for Up-dating Reliability Analysis: Application on Pile-Supported Wharves' *Humberto Yáñez-godoy & Franck Schoefs, Nantes Atlantic University and Marc Lasne, OXAND SA, France*

'Long-Time Observation of a RC Chimney's Stiffness with the use of Wind-Excited Vibration' *Ondřej Fischer, Miroš Pirner and Shota Urushadze, Academy of Sciences, Czech Republic*

Seismic Reliability

'Load Factor Optimisation of Turkish Seismic Design Code' *Armagan Korkmaz, Suleyman Demirel University and Engin Aktas, Izmir Institute of Technology, Turkey*

'Reliability of the Dynamic Interactive Behaviour of 3-D Frame-Shear Wall-Raft-Soil Mass System' *R El-bordany, Housing & building National Research Centre and M El-Meligy, El-Mansoura University, Egypt*

'Seismic Performance of RC Bridge Piers Considering Ageing of Base-Isolated Rubber' *Takeshi Kitahara, Kanto Gakuin University, Japan*

'First Excursion Probability and Peak Response of a Shear Beam under High Frequency Seismic Effects' *Zbigniew Zembaty, Opole University of Technology, Poland*

'Uniform Hazard Vs. Uniform Risk Bases for Performance-based Earthquake Engineering of Light-Frame Wood Construction' *Yue Li & William M. Bulleit, Michigan Technological University and Bruce R. Ellingwood, Georgia Institute of Technology, USA*

'Probabilistic Performance Assessment of Structural Behaviour of Low Rise R/C Structures in Turkey' *Armagan Korkmaz, Suleyman Demirel University, Turkey*

'A Study on the Aseismic Reliability for the Stability of Cantilever Retaining Wall' *Fu-Kup Huang, Tamkang University and Grace S. Wang, Chaoyang University of Technology, Taiwan*

'A New Computational Method for Seismic Hazard Analysis' *Grace S. Wang, Chaoyang University of Technology and F.K. Huang, Tamkang University, Taiwan*

'Estimating Damage Potential of Structures in Active Seismic Zones' *Mohamed Ihab Sherif Elmasry, Arab Academy for Science & Technology & Maritime Transport, Egypt*

'Probabilistic Performance Assessment of Steel Moment Resisting Frames' *A K Kazantzi, T D Righiniotis, M K Chryssanthopoulos, University of Surrey, UK*

Reliability of Composite Structures

'Reliability Analysis of Stiffened Laminated Plates' *Nana Yang and Purnendu K. Das, Universities of Glasgow & Strathclyde, UK*

'Variabilist Multilevel Strategy for Composite Structures' *Nicolas Carrere and J.F. Maire, ONERA, France*

'Differences between Realistic and Notional Reliability Estimates' *Stuart Reid, University of Sydney, Australia*

'Contribution of Virtual Testing and Advanced Statistical Modelling in the Derivation of Design Allowables' *Francois-Henry Leroy, N. Gueit & Y. Rollet, ONERA, France*

'Performance of Steel – Composite Adhesive Joints for Marine Structures' *S.A. Hashim, A. Hakim and J. Nisar, University of Glasgow, UK*

'Reliability-Based Optimisation of a Stiffened Composite Shell Structure Subjected to an Axial Compressive Load' *Hao Wu & Ying Yan, Beihang*

University, China and R. Ajit Shenoi & Jing Tang Xing, University of Southampton, UK

'The Application of Reliability Methods in the Design of FRP Composite Ship Structures' James I.R. Blake & R. A. Shenoi, University of Southampton and Purnendu K. Das, Universities of Glasgow & Strathclyde, UK

Risk-based Integrity Management

'A Review of Wind Turbine Reliability Data and a Risk Based Methodology for Maintenance Management of Wind Farms' Ujjwal Bharadwaj, Chris Ablitt, John Wintle and Vadim Silberschmidt, TWI Ltd, UK

'Bridge Management and Its Accounting Systems' Hirokazu Yamamoto Osaka Branch Central Consultants; Keiichi Yasuda, Newjec; Mitsuru Jido, CFK Consultants and Hitoshi Furuta, Kansai University, Japan

'Cost-Effective Timing and Extent of Maintenance for RC Structures Subjected to Spatially Variable Corrosion Damage' John A. Mullard and Mark G. Stewart, University of Newcastle, Australia

'Optimum Preventative Maintenance Strategies using Genetic Algorithm and Bayesian Updating' Elia A. Tantele, PB Godalming UK and Toulia Onoufriou, Cyprus University of Technology, Cyprus

'Risk-Based Inspection in Case of Random Fields of Defects: Application to Coastal Structures' Franck Schoefs, Jérôme Boreo, Alexandre Clement & Anthony Nouy, Nantes Atlantic University, France and Bruno Capra, OXAND SA, France

'Expert Judgement for Combining NDT Tools in RBI Context: Application to Marine Structures' Jérôme Boreo & Franck Schoefs, Nantes Atlantic University and Bruno Capra, OXAND SA, France

'Safety Assessment of Deteriorating Concrete Structures in Marine Environments' Alan O'Connor and Omran Kenshel, Trinity College, Ireland

'Investigation of the Effect of the Quality of Inspection Techniques on the Optimal Inspection Interval for Structures' Alan O'Connor & Emma Sheils, Trinity College, Ireland; Denys Breyse, Université Bordeaux, France and Franck Schoefs, Nantes Atlantic University, France

Imperfections and Spatial Effects

'Safety Evaluation Reinforced Concrete Beams Involving the Spatial Variability of the Model Parameters' D.L. Allaix, V.I. Carbone and G. Mancini, Politecnico di Torino, Italy

'A Model for the Correlation Structure of the Random Out-of-Flatness Imperfection of the Plates' F. Cafarella and A. Braconi, University of Pisa, Italy

'Post-Buckling Analysis of Structures with Uncertain Material Properties' U. Alibrandi & G. Ricciardi, Università di Messina and N. Impollonia, Università di Catania, Italy

'Sensitivity Analysis of Ultimate Resistance of Steel Plane Frames to Imperfections' Abayomi Omishore and Zdeněk Kala, Brno University of Technology, Czech Republic

'Spatial characteristics of GFRP cladding panels: an experimental study', *S. Sriramula and M. K. Chryssanthopoulos, University of Surrey, UK*

Computation Methods in Structural Reliability Analysis

'Current Possibilities of direct determined fully probabilistic method (DDPFM)' *Petr Janas, Martin Krejsa and Vlastimil Krejsa, VSB – Technical University of Ostrava, Czech Republic*

'Comparison of Approaches to Life-Cycle Analysis of Structural Reliability using Renewal Processes' *Mirek Sykora, Czech Technical University, Czech Republic*

'On the Adequacy of Metamodelling Techniques in Probabilistic Design of Railway Sleepers' *Johanna Lilja, Thomas J.S. Abrahamsson and Jens C.O. Nielsen, Chalmers University of Technology, Sweden*

'Reliability of Piecewise Linear Systems Subject to Stochastic Excitations' *Kyriakos Perros and Costas Papadimitriou, University of Thessaly, Greece*

'Derivation of Probability Distribution Parameters through L-Moments' *G. Najafian, University of Liverpool, UK*

'Adaptive Sparse Polynomial Chaos Expansions – Application to Structural Reliability' *Geraud Blatman and Bruno Sudret, Institut Francais Mécanique Avancée, France*

'Probabilistic Multivariate Calibration: Evaluation of the Input Database Quality and Proposal of a Calibration Methodology' *Arsene Yameogo, Electricité de France, France*

'Stochastic FEA of Pre-Stressed Concrete Girder Bridge for Reliability-based Bridge Code Calibration' *Inyeol Paik, Kyungwon University, Korea*

'Dealing with Noisy Limit State Function in Structural Reliability Assessment of a Crashed thin-Walled Beam' *R. Stocki, P. Tuzowski and J. Knabel, Institute of Fundamental Technological Research, Polish Academy of Sciences, Poland*

'Use of Polynomial Chaos Expansions in Stochastic Inverse Problems' *F. Perrin, Institut Francais de Mécanique Avancée; Bruno Sudret, Electricité de France, R&D Division and M. Pendola, Phimeca Engineering SA, France*

'Application of Coupled RKHS-HDMR to Stochastic Mechanics and Reliability' *Rajib Chowdhury, B.N. Rao and A. Meher Prasad, Indian Institute of Technology, India*

Structural Reliability Applications

'Probabilistic Reliability Analysis of Deepwater Steel Catenary Risers' *Jie Xia and Purnendu K. Das, Universities of Glasgow & Strathclyde, UK*

'Reliability Analysis of Wind Turbines' *Henrik Stensgaard Toft and John Dalsgaard Sørensen, Aalborg University, Denmark*

'Simulation-Based Reliability Assessment of Timber Structures' *Antonín Lokaj and Pavel Marek, VŠB-TU Ostrava, Czech Republic*

'Time Variant Reliability Assessment for Adhesively-Bonded Assemblies with Non-Linear Behaviour in Naval Applications' *Mejri Mohamed and Jean-Yves Cognard, ENSIETA, France*

'Reliability-based Dynamic Position Control of Floating Vessels: A Numerical and Experimental Study' *Bernt J. Leira, P.I. Berntsen and O.M. Aamo, Norwegian University of Science & Technology, Norway*

'Reliability Analysis of Laterally Loaded Piles using Response Surface Methods' *Jerzy Bauer, Wojciech Pula, Marek Wyjadlowski, Wroclaw University of Technology, Poland*

Marine Structures

'Ultimate Limit State Design of 300k VLCC Class Double Hull Oil Tanker Structures: IACS Pre-CSR Design Versus CSR Design' *Jeom Kee Paik, Sang Wook Hwang, Jun Seok Park, Pusan National University, Korea and Emmanuel Samulides, National Technical University of Athens, Greece*

'Ultimate Limit State Design of 170k Class Bulk Carrier Structures: IACS Pre-CSR Design versus CSR Design' *Jeom Kee Paik & Jae Min Chung, Pusan National University and Jin Young Kim, Registro Italiano, Busan Office, Korea*

'Prediction of Ultimate Global Behaviour of Bulk Carriers under Double Bottom Bending' *Hadi K.K. Amlashi and Torgeir Moan, Norwegian University of Science & Technology, Norway*

Bridge Structures

'Performance-based Wind Engineering as a Tool for the Design of the Hangers in a Suspension Bridge' *Marcello Ciampoli, Franco Bonntempi and Francesco Petrini, University of Rome, Italy*

'Analytical study on Repair Method for Existing Riveted Joints Replaced Some Rivets by High Strength Bolts as Frictional Connection' *Kunitaro Hashimoto, Shinko wire Co. Ltd. and Takashi Yamaguchi & Toshiyuki Kitada, Osaka City University, Japan*

'Robustness Assessment of a Long Span Suspension Bridge in Presence of Different Loading Scenarios' *Luisa Giuliani, Konstantinos Gkoumas and Franco Bontempi, University of Rome, Italy*

'The Effect of Permit Vehicles on the Reliability of highway Bridges' *M. Gindy, University of Rhode Island, USA*

'The Variability of Bridge Lifetime Load Effect Allowing for Dynamic Interaction' *Colin Caprani, P.H. Rattigan and A. Gonzalez, Dublin Institute of Technology, Ireland*

Development of Codes

'Wind Load Factors for Tall Building Design' *Rene D. Gabbai, Dat Duthinh and Emil Simiu, National Institute of Standards and Technology, USA*

'The Structural Reliability Basis of Eurocodes, especially in Relation to EN 1990: Basis of Design' *H. Gulvanessian, BRE, UK and T.D.G. Canisius, Scott Wilson plc, UK*

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