

3rd International ASRANet Colloquium
Glasgow, UK
10 - 12th July 2006

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Session 1 System Reliability

Co-chairs: Michael Baker & Vedran Zanic

[09 30 Keynote Paper: System reliability revisited; Armen Der Kiureghian, University of California at Berkeley, USA.](#)



[10 00 An efficient approach for system reliability-based design optimisation; Younes Aoues, Alaa Chateauf, LaMI-UBP & IFMA, France.](#)



[10 20 Structural reliability assessment using direct determined fully probabilistic calculation; A Petr Janas, Martin Krejsa and Vlastimil Krejsa, V ŠB - Technical University of Ostrava, Czech Republic.](#)

[10 40 Estimating the reliability of transmission line towers; J Krishnan, V Kalyanaraman and D Menon, IIT Madras, India](#)

[11 30 Reliability analysis of earth dams: Case of El Houareb dam – Kairouan – Tunisia; Z Mrabet, Geo-Risk Consulting, USA; M Ridha El ouni, Institut National Agronomique de Tunis, Tunisia; Khaled Kheder, Institut Supérieur des Etudes Technologiques de Nabeul, Tunisia.](#)

[11 50 Reliability based optimisation – Application to racking of multi-deck ships; V Zanic and M Stipcevic, University of Zagreb, Croatia; J Hozmec, Trimco, Zagreb, Croatia](#)

[12 10 Reliability prediction of open jetties under lateral and gravity actions; A Kudzys, KTU Institute of Architecture & Construction, Kaunas, Lithuania; L J Vaicekauskas, Klaipeda University Civil Engineering Department, Klaipeda, Lithuania](#)

Session 2 Structural Risk Management, Human & Organisational Factors

Co-chairs: Milan Holicky & Marios Chryssanthopoulos

[14 00 Keynote Paper: Why the uncertainty? – Reliability theory and practice in engineering education; Michael J Baker, University of Aberdeen, UK.](#)

[14 30 Risk analysis and optimisation of road tunnels; M Holicky, Czech Technical University in Prague, Czech Republic](#)

[14 50 Probabilistic fatigue life prediction and risk assessment strategy; Tony Y Torng, The Boeing Company, USA](#)

[15 10 Seismic risk management of buildings considering insurance systems; J Kanda, The University of Tokyo, Japan; S Okamura, Takenaka Corporation, Japan](#)

[16 00 Risk-based ship design: Concept, methodology and framework; D Vassalos and D Korovessis, Universities of Glasgow & Strathclyde, UK; L Guarin, Safety at Sea Ltd, UK.](#)

[16 20 Socio-economic factors on risk evaluation; D De Leon, Autonomous University of](#)

[Mexico State, Mexico](#)

[16 40 Risk comparison of natural hazards in Japan; T Takada, M Ohbuchi and Y Horiuchi, The University of Tokyo, Japan.](#)

[17 00 Reliability model for human comfort, J E Laier and W S Venturini, University of Sao Paulo, Brazil; A Chateauf, Institut Francais de Mecanique Avancee, France](#)

Session 3 Probabilistic Load Modelling

Co-chairs: Gholamhossein Najafian & Kaushik Sinha

[10 00 Generalized geometric distribution in structural design practice; A Kudzys, KTU Institute of Architecture and Construction, Lithuania](#)

[10 20 An efficient method for derivation of probability distribution parameters; G Najafian, Dept. of Engineering, University of Liverpool, UK](#)

[10 40 Whaleback forecastle for reducing green water loading on high speed container vessels; X Pham and K S Varyani, Universities of Glasgow & Strathclyde, UK](#)

[11 30 Finding the distribution of bridge lifetime load effect by predictive likelihood; C C Caprani and E J O'Brien, School of Architecture, Landscape and Civil Engineering, University College Dublin, Ireland](#)

[11 50 Measuring long - term dynamic response of bridges; M Pirner, S Urushadze and O Fischer, Institute of Theoretical and Applied Mechanics AS CR, Czech Republic](#)

[12 10 Study of same-lane and inter-lane GVW correlation; B Enright, Department of Civil and Structural Engineering, Dublin Institute of Technology, Dublin, Ireland; E J O'Brien and C C Caprani, School of Architecture, Landscape and Civil Engineering, University College Dublin, Ireland.](#)

Session 4 Reliability Based Design, Optimisation & Codes

Co-chairs: Julian Austin & Jaroslav Mencik

[14 30 Optimisation of the cost of maintaining railway wheels; Dr J Austin and A Wylie, Frazer-Nash Consultancy Ltd, UK; R Kay, London South East Railway Ltd](#)

[14 50 Reliability assessment of highway composite bridges; M Rieger and P Marek, VSB Technical University of Ostrava, Czech Republic](#)

[15 10 Inverse reliability based design optimization of cantilever retaining walls; G L Sivakumar Babu and B M Basha, Indian Institute of Science, Bangalore, India](#)

[16 00 Optimum-reliability dimensioning: Cost-based approach; J Mencik, University of Pardubice, Czech Republic](#)

[16 20 A simple formula for LRFD using the third-moment method; Y G Zhao and Z H Lu,](#)

[Nagoya Institute of Technology, Japan; G H Jin, ISO Design Co. Ltd, Japan](#)

[16 40 Uncertainty quantification based multi-objective optimisation for crashworthiness design; K Sinha and R Krishnan, DaimlerChrysler Research and Technology, India](#)

[17 00 Risk analysis for survey optimisation of harbours; Y. Billard and M. Lasne, Oxand SA, France; O. Bernard, Oxand SA, France-Switzerland; F. Schoefs, University of Nantes, GeM, France.](#)

Session 5 Computation Methods in Structural Reliability - I

Co-chairs: Mark Stewart & Nawal Prinja

[09 00 Keynote Paper: Implementation of parametric reliability methods in industrial applications; Maurice Lemaire, IFMA, France](#)

[09 30 A PDEM-based reliability method for structures; J Li and J B Chen, Tongji University, P.R China.](#)

[09 50 Reliability sensitivity analysis using polynomial chaos expansions; G Hou, N Borade and B Floersheim, Old Dominion University, USA](#)

[10 10 Development of a time-variant reliability approach for marine structures subjected to corrosion; M Cazuguel and J Y Cognard, Naval Structures Mechanics Laboratory, ENSIETA, France](#)

[11 00 Keynote Paper : Application of approximate response functions in structural reliability analysis; Christian Bucher, University of Weimar, Germany.](#)

[11 30 The model correction factor method: An efficient response surface technique; Luca Garre and Peter Friis Hansen, Technical University of Denmark, Denmark; Enrico Rizzuto, Department of Naval Architecture, University of Genoa, Italy](#)

[11 50 Reliability analysis by support vector machine classification; F Deheeger and M Lemaire, LaMI-UBP & IFMA, Campus de Clermont-Ferrand, Aubiere Cedex, France](#)

[12 10 Use of subset simulation to determine design point in reliability analysis; S Amatya and Y Honjo, Dept. of Civil Engineering, Gifu University, Japan.](#)

Session 6 Management of Deteriorating Structures

Co-chairs: Haig Gulvanessian & Conrad De Souza

[14 00 Keynote Paper: Advances in mathematical-probabilistic modelling of the atmospheric corrosion of structural steels in ocean environments; Robert E Melchers, University Of Newcastle, Australia.](#)

[14 30 Damage assessment of reinforced concrete bridge decks using ADABOOST; H Furuta and H Hattori, Kansai University, Japan; Dan M Frangopol, University of Colorado, USA](#)

[14 50 Maintenance policy selection based on reliability value analysis; K B W Woods and M T Todinov, Cranfield University, UK; J E Strutt, Boreas Consultants Limited, UK](#)

[15 10 A bridge management strategy based on future reliability and semi-Markov deterioration models; F Bortot, D Zonta and R Zandonini, University of Trento, Italy](#)

[15 30 Strategic planning of preventative maintenance for reinforced concrete bridges; E A Tantele and T Onoufriou, University of Surrey, UK](#)

Session 7 Response to Accidental Loads

Co-chairs: Gerard Canisius & Toulou Onoufriou

[16 20 Reliability assessment of explosion resistant design; Sirous F Yasseri, KBR Engineering, UK](#)

[16 40 A method for the quantification and extension of UK building regulations' requirements for robustness ; T.D.G. Canisius, BRE, UK.](#)

[17 00 Security risks and structural reliability of window glazing subject to explosive Blast loading; M D Netherton and M G Stewart, University of Newcastle, Australia.](#)

[17 20 Scenarios for the assessment of the collision behaviour of marine structures; M S Samuelides and D Dimou, National Technical University of Athens, Greece; A Incecik, University of Newcastle, UK; O Ozguc, Universities of Glasgow & Strathclyde, UK; K Tabri, Helisinki Institute of Technology, Finland](#)

Session 8 Structural Modelling and Analysis

Co-chairs: Paul Frieze & Terry Rhodes

[09 30 Comparisons of adhesive bonded and welded beams; S A Hashim, University of Glasgow, UK; K Loke, INBIS Ltd, Bristol, UK](#)

[09 50 Ultimate limit states for steel plate panels and their BS5400-3 and DNV rules predictions; Sanghoon Park and Paul Frieze, PAFA, UK](#)

[10 10 Numerical modelling of ship collision based on finite element codes; O Ozguc, P K Das, N Barltrop and M Shahid, Universities of Glasgow & Strathclyde, UK; M Samuelides, National Technical University of Athens, Greece](#)

[11 30 Limit loads of stochastically heterogeneous structures; J Saffury and E Altus, Technion-Israel Institute of Technology, Israel](#)

[11 50 Structural computations with uncertain data applied to composite materials; Y Rollet, N Carrere, F-H-Leroy and J-F Marie, ONERA, France.](#)

Session 9 Fatigue and Fracture

Co-chairs: Nigel Barltrop & Tony Y Torng

[14 30 A spectral fatigue analysis of 5500 TEU container ship; H S Chan, University of Newcastle upon Tyne, UK; C.C Fang, National Taiwan Ocean University, Taiwan; H.T. Wu, United Ship Design and Development Centre, Taiwan](#)

[14 50 Some approaches to improve the computational efficiency of the reliability analysis](#)

[of complex crack propagation problems; *L Nespurek and J M Bourinet, Université Blaise Pascal, France; Anthony Gravouil, INSA de Lyon, France; Maurice Lemaire, Université Blaise Pascal, France*](#)

[15 10 Super-duplex stainless steel: A case study of incorporating anisotropic material properties into reliability assessments; *N C Renton, W.F Deans and M J Baker, University of Aberdeen, UK*](#)

[15 30 The assessment of stress concentrations in a bracket detail; *Xu Li, Nigel Bartrop, Universities of Glasgow & Strathclyde, UK*](#)

Co-chairs: Anup Puri & Mark Manzocchi

[16 20 Comparison of methods for estimating the fatigue life of a naval frigate; *J S Kent, QinetiQ Rosyth, Dunfermline, UK*](#)

[16 40 Fatigue reliability of riveted connections in railway bridges; *B M Imam, T D Righiniotis and M K Chryssanthopoulos, University of Surrey, UK*](#)

[17 00 A Durability model incorporating safe life methodology and damage tolerance approach to assess first inspection period for structures; *J J Xiong, Aircraft Department, Beihang University, China; R A Shenoi, School of Engineering Sciences, University of Southampton, UK*](#)

[17 20 Interaction of three interfacial Griffith cracks between bonded dissimilar orthotropic half planes; *S Das, B.P. Poddar Institute of Management & Technology, Kolkata, India*](#)

Session 10 Marine Structures

Co-chairs: Richard Snell & Luis Guarin

[09 00 Keynote Paper: Unified design codes for ships based on reliability analysis- present status and challenges ; *Torgeir Moan, Centre for Ships and Ocean Structures NTNU, Norway.*](#)

[09 30 The progressive collapse of ship structures; *Bob Dow, University of Newcastle upon Tyne , UK .*](#)

[09 50 Research on uncertainties in ultimate longitudinal strength of cross section of ship's hull based on non-Linear FEM; *M Harada and T Shigemi, Nippon Kaiji Kyokai, Research Institute, Japan.*](#)

[10 10 Assessment of ultimate bending moment of ships from a reliability point of view, using independent perturbations method; *C Toderan, T Richir, J D Caprace, Ph Rigo, University of Liege, Belgium.*](#)

[10 30 Ultimate strength and reliability analysis of a VLCC; *I A Khan and P K Das, Universities of Strathclyde & Glasgow, UK; G Parmentier, R&D Department, Bureau Veritas, Paris, France*](#)

Co-chairs: Robert Dow & Manolis Samuelides

[11 20 Sensitivity analysis in structural reliability of marine structures; *B Chakraborty and A Bhar, Indian Institute of Technology, Kharagpur, India.*](#)

[11 40 Analysis of hull girder strength in the damaged condition; J Downes and A Incecik, University of Newcastle upon Tyne, UK; M Collette, SAIC, USA.](#)

[12 00 A complete reliability evaluation of a bulk carrier hull structure, P. Debek and L. Konieczny, Ship Structure Division, CTO S.A. Poland](#)

[12 20 A new initiation for regulatory reform in marine industry; A.R Kar, Indian Register of Shipping, India.](#)

Session 11 Computation Methods in Structural Reliability - II

Co-chairs: Sirius Yasseri & Purnendu Das

[14 00 Fuzzy and stochastic theories and their applications in structural engineering; Z Kala and A Omishore, Brno University of Technology, Czech Republic](#)

[14 20 Design points in directional simulation; F Perrin, M Pendola and F Suau, PHI-MECA Engineering SA, France.](#)

[14 40 Probabilistic reliability assessment of a steel frame applying the SBRA method; P Marek and V Krivy, Technical University of Ostrava, Czech Republic](#)

Session 12 Seismic Reliability Assessment

Co-chairs: Jun Kanda & David de Leon

[09 30 Earthquake reliability of gas system under stochastic loads; M Alexoudi, Th. Hatzigogos and K Pitilakis, Aristotle University of Thessaloniki, Greece](#)

[09 50 Seismic fragility curves for a welded steel-moment resisting frame; A K Kazantzi, T D Righiniotis and M K Chryssanthopoulos, University of Surrey, UK](#)

[10 10 Energy representation of earthquake ground motions for probabilistic seismic hazard analysis; M Ohbuchi, Y Masuda and T Takada, University of Tokyo, Japan](#)

[10 30 Treatment of the uncertainty in seismic loading through the response surface method; Christiana Dymiotis-Wellington, City University, UK](#)

Session 13 Advanced Analysis of Concrete Structures

Co-chairs: Bruno Sudret & Jean – Marc Bourinet

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[11 40 Level III calculations for hardening concrete elements; H W M van der Ham, E A B Koenders and K van Breugel, University of Technology Delft, The Netherlands](#)

[12 00 Earthquake risk assessment of existing R/C structures in Turkey; A Korkmaz, Penn State University, USA](#)

[12 20 Bayesian updating of the long-term creep deformations in concrete containment vessels; B Sudret and M Berveiller, Electricite de France, R&D Division, France; F Perrin and M Pendola, Phimeca Engineering S.A, France](#)