CV Igor T. Rychlik

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Personal Data

Born October 8, 1952, Krakow, Poland. Moved to Sweden 1976. Swedish citizen from 1984.

Education

1971-1976 Warsaw University of Technology, studies in Applied Mathematics.

1978 Bachelor of Science at Umeå University, Sweden.

1986 Doctor of Philosophy in mathematical statistics, University of Lund.

1990 Docent in mathematical statistics, University of Lund.

1992 Lecturer in mathematical statistics, University of Lund.

1999-2001 Professor in mathematical statistics, University of Lund.

2001-2006 Professor in mathematical statistics, University of Lund 80%.

2001-2006 Visiting professor in mathematical statistics, Chalmers University of Technology 20%.

2007 - Visiting professor in mathematical statistics, University of Lund 30%.

2007 - Professor in mathematical statistics, Chalmers University of Technology 70%.

International experience

1988-1990 Visiting Professor at Dept. of Statistics, Colorado State University.

1989 Visiting Research Professor at Dept. of Statistics, University of North Carolina at Chapel Hill, USA, Center for Stochastic Processes (5 months).

1990-1992 Visiting Research Professor at Center for Applied Mathematics, Cornell University, Ithaca (5 months).

1993-97 Dept. of Statistics, University of North Carolina at Chapel Hill, USA, Center for Stochastic Processes (6 month).

1995 Dept. of Mathematics, University of Queensland, Brisbane, Australia, (5 months).

1997-2002 Dept. of Mathematical Sciences in the School of Science at Indiana University - Purdue University Indianapolis, USA, (7 months).

Professional services

2004 - Associate editor of *Naval Research Logistics*

2004 - Member of TPC for ISOPE *International Society of Offshore and Polar Engineers.*

1996 - External examiner or member of PhD comitee 6 times in Sweden, twice in France, once in Belgium and twice in Norway.

Supervision of graduate students

The list of scientists who wrote PhD thesis under my supervision:

1994 Roger Petterson, Doctors Theses entitled: *Approximations for ordinary, reflecting, and multivalued stochastic differential equations.*

1999 Pär Johannesson, Doctors Theses entitled: *Rainflow Analysis of Switching Markov Loads.*

2000 Eva Sjö, Doctors Theses entitled: *Crossings and Maxima in Gaussian Fields and Seas.*

2002 Jesper Rydén, Doctors Theses entitled: *Statistical Analysis of Crest and Maxima in Gaussian Seas.*

2003 Ulla Machado, Doctors Theses entitled: *Statistical analysis of nonGaussian environmental loads and responses..*

2004 Anastassia Baxevani, Doctors Theses entitled: *Modelling Sea Surface Dynamics Using Crossing Distributions.*

2005 Oskar Hagberg, Doctors Theses entitled: *Assymptotic Expansions of Crossing Rates of Stationary Random Processes.*

2007 Sofia Åberg, Doctors Theses entitled: *Applications of Rice's Formula in Oceanographic and Environmental Problems.*

2007 Klas Bogsjö, Doctors Theses entitled: *Road Profile Statistics relevant for Vehicle Fatigue.*

2010 Wengang Mao Doctors Theses entitled: *Fatigue Assesment and Extreme Response Prediction of Ship Structures.*

Co-supervision of graduate students

1991 Claes Jorgéus, Doctors Theses entitled: *Methods for analysis of Switching Stochastic Systems*

1998 Zbigniew Michna, Doctors Theses entitled: *Ruin Probabilities and First Passage Times for Self-Similar Processes* (1998) and

2001 Xavier Pitoiset from Dept. of Mechanical Engineering and Robotics, Free University of Brussels, thesis, entitled *Méthodes spectrales pour une analyse en fatigue des structures métalliques sous chargements aléatoires multiaxiaux* (2001).

List of Publications

Published Papers in International Journals

1.1 Lindgren, G. and Rychlik, I. (1982) Wave characteristic distributions for Gaussian waves, wave -length, amplitude, and steepness. *Ocean. Engng.* **9**, 411-432

1.2 Rychlik, I. (1987) Regression approximations of wavelength and amplitude distributions. *Adv. Appl. Prob.* **19**, 396-430

1.3 Rychlik, I. (1987) Joint distribution of successive zero crossing distances for stationary Gaussian processes. *J. Appl. Prob* **24**, 378-385

1.4 Rychlik, I. (1987) A note on Durbin's formula for the first passage density. *Statistics & Probability Letters* **5**, 425-428

1.5 Rychlik, I. (1987) A new definition of the rainflow cycle counting method. *Int. J. Fatigue* **9**, 119-121

1.6 Lindgren G. and Rychlik, I. (1987) Rain flow cycle distribution for fatigue life prediction under Gaussian load processes. *Fatigue Fract. Engng Mater. and Struct.* **10**, 251-260

1.7 Rychlik, I. (1988) Rain flow cycle distribution for ergodic load processes. *SIAM J. Appl. Math.* **48**, 662-679.

1.8 Rychlik, I. (1989) Simple approximations of the Rain-Flow-Cycle distribution for discretized random loads. *Probabilistic Engineering Mechanics* **4**, 40-48

1.9 Rychlik, I. (1990) New bounds for the first passage, wave-length and amplitude densities. *Stochastic Process. Appl.* **34**, 313-339

1.10 Lindgren, G. and Rychlik, I. (1991) Slepian models and regression approximations in crossing and extreme value theory. *International Statistical Review* **59**, 195-225

1.11 Rychlik, I. (1992) Rainflow cycles in Gaussian loads. *Fatigue Fract. Engng Mater. and Struc.* **15**, 57-72

1.12 Rychlik, I. (1992) The two barriers problem for continuously differentiable processes. *Adv. Appl. Probab.* **24**, 71-94

1.13 Rychlik, I. and Grigoriu, M. (1992) Reliability of Daniels systems with equal load sharing rule subject to stationary Gaussian dynamic loads. *Probabilistic Engineering Mechanics*, **7**, 113-121

1.14 Rychlik, I. (1992) Confidence bands for linear regressions. *Commun. in Statist.* **21**, 333-352.

1.15 Rychlik, I. and Lindgren, G. (1993) CROSSREG - a computer package for extreme value and wave analysis, with reliability applications. *Probability in the Engineering and Informational Sciences*, **7**, 125-148.

1.16 Rychlik, I. (1993) On the "narrow-band" approximation for expected fatigue damage. *Probabilistic Engineering Mechanics*, **8**. 1-4

1.17 Frendahl, M. and Rychlik, I. (1993) Rainflow analysis - Markov method. *Int. J. Fatigue*, **15**, 265-272

1.18 Rychlik, I. (1993) Note on cycle counts in irregular loads. *Fatigue Fract. Engng Mater. and Struc.*, **16**, 377-390.

1.19 Michna, Z. and Rychlik, I. (1995) The Expected Number of Level Crossings for Certain, symmetric α-Stable Processes, *Stochastic Models*, **11.1** pp. 1–19.

1.20 Rychlik, I., Lindgren, G. and Lin, Y.K. (1995) Markov based correlations of damages in Gaussian and non-Gaussian loads, *Probabilistic Engineering Mechanics*, **10** pp. 103-115.

1.21 Lindgren, G. and Rychlik, I. (1995) How Reliable are Contour Curves - Confidence Sets for Level Contours, *Bernoulli Official Journal of the Bernoulli Society*, **1(4)** pp. 301-319.

1.22 Rychlik I. (1996) A note on significant wave height, *Ocean Engineering*, **23** pp. 447-454.

1.23 Rychlik I. (1996) Extremes, rainflow cycles and damage functionals in continuous random processes, *Stochastic Process. Appl.*, **63**, pp. 97-116.

1.24 Rychlik I. (1996) Simulation of load sequences from Rainflow matrices: Markov method, *Int. J. Fatigue*, **18** , pp. 429-438.

1.25 Rychlik I. (1996) Fatigue and stochastic loads, *Scandinavian Journal of Statistics*, **23**, pp. 387-404.

1.26 Rychlik I., Johannesson P. and Leadbetter M. R. (1997) Modelling and Statistical Analysis of Ocean-Wave Data using transformed Gaussian processes, *Marine Structures*, **10**, 13-47.

1.27 Lindgren G., Rychlik I. and Prevosto M. (1998) The relation between wave length and wave period distribution in random Gaussian waves. *International Journal of Offshore and Polar Engineering*, **8**, 258-264.

1.28 Lindgren G., Rychlik I. and Prevosto M. (1999) Stochastic Doppler shift and encountered wave period distributions in Gaussian random waves. *Ocean. Engng.*, **26**, 507-518.

1.29 Piterbarg, V. and Rychlik, I. (1999) Central limit theorem for wave-functionals of Gaussian processes. *Adv. Appl. Probab.*, **31**, 158-177.

1.30 Podgórski, K., Rychlik I. and Machado, U. E. B. (2000) Exact Distributions for Apparent Waves in Irregular Seas, *Ocean. Engng.*, **27**, 979-1016.

1.31 Podgórski K., Rychlik I. and Sjö E. (2000) Statistics for Velocities of Gaussian Waves. The paper earned a price: The best paper at ISOPE 1999. *International Journal of Offshore and Polar Engineering*, **10**, pp. 91-98.

1.32 Podgórski K., Rychlik I., Rydén J. and Sjö E. (2000) How big are the big waves in a Gaussian sea? *International Journal of Offshore and Polar Engineering*, **10**, pp. 161-169.

1.33 Rychlik I. and Leadbetter M. R. (2000) Analysis of ocean waves by crossing and oscillation intensities. *International Journal of Offshore and Polar Engineering*, **10**, pp. 282-289.

1.34 Rychlik I. (2000) On some reliability applications of Rice formula for intensity of level crossings, *Extremes*, **3:4**, pp. 331-348.

1.35 Pitoiset, X. Rychlik, I. and Preumont, A. (2001) Spectral methods to estimate local multiaxial fatigue failure criteria for structures undergoing random vibrations. *Fatigue Fract Engng Mater Struct*, **24**, pp. 715–727.

1.36 Rydén, J., van Iseghem, S., Olagnon, M., and Rychlik I. (2002) Evaluating Height-lenght Joint Distributions for the Crest of Ocean Waves, *Applied Ocean Research.* **24**, pp. 189–201.

1.37 Rychlik I. and Sjö, E. (2002) Distribution of the Global Maximum of a Stochastic Process, *Methodology and Computing in Applied Probability*, **4**, pp. 291–307.

1.38 Baxevani, A. Podgórski, K., and Rychlik, I. (2003) Velocities for moving random surfaces, *Probabilistic Engineering Mechanics*, **18**, pp. 251–271.

1.39 Machado, U. and Rychlik, I. (2003) Wave statistics in nonlinear random sea. *Extremes*, **6**, pp. 125–146.

1.40 Baxevani, A., Rychlik, I. and Wilsson R. (2005) A new method for modelling the space variability of significant wave height, *Extremes*, **8** pp 267-294.

1.41 Baxevani, A., Rychlik, I. (2006) Maxima for Gaussian seas. *Ocean Engineering* **33**, pp. 895-911.

1.42 Rydén J., Rychlik I. (2006) A note on estimation of fire ignitions with incomplete data, *Fire Safety Journal* **41**, pp. 399-405.

1.43 Rychlik, I., Gupta S. (2007) Rain-flow Fatigue Damage for transformed Gaussian Loads, *Int. J. Fatigue* 29, pp. 406-420.

1.44 Baxevani, A., Rychlik, I. (2007) Fatigue Life Prediction for a Vessel Sailing the North Atlantic Route, *Probabilistic Engineering Mechanics*, **22**, pp. 159-169.

1.45 Rychlik I., Åberg S., Leadbetter M.R. (2006) Note on the intensity of encountered waves, *Marine Structures* 34 pp. 1561-1568.

1.46 Baxevani A., Caires S. and Rychlik I. (2008) Spatio-temporal statistical modelling of significant wave heigth, *Environmetrics* Vol. 20 pp. 14-31.

1.47 Gupta S., Rychlik I. (2007) Rain-flow Fatigue Damage due to Nonlinear Combination of Vector Gaussian Loads, *Probabilistic Engineering Mechanics* **22** pp. 231-249.

1.48 Åberg S., Rychlik I. (2007) Doppler-shift approximations of encountered wave statistics, *Ocean Engineering* 34, pp. 2300-2310.

1.49 Åberg S., Rychlik I. and M. Ross Leadbetter (2008) Palm distributions of wave characteristics in encountering seas *Ann. Appl. Probab.* Volume 18, Number 3, pp. 1059-1084.

1.50 Podgórski, K., and Rychlik, I. (2008) Envelope crossing distributions for Gaussian fields, *Probabilistic Engineering Mechanics*. Vol. 23, pp. 364-377.

1.51 Baxevani, A. Borget, C. and Rychlik, I. (2008) Spatial Models for the Variability of the Significant Wave Height on the World Oceans. *International Journal of Offshore and Polar Engineering (ISSN 1053-5381)* Vol. 18, No. 1, March 2008, pp. 1-7.

1.52 Åberg S., Podgórski K. and Rychlik I. (2009) Fatigue damage assessment for a spectral model of non-Gaussian random loads, *Prob. Eng. Mech*, Vol 24, pp. 608-617.

1.53 Bengtsson A., K., and Rychlik, I. (2009) Uncertainty in fatigue life prediction of structures subject to Gaussian loads, *Probabilistic Engineering Mechanics*, Vol. **24**, pp. 224-235.

1.54 Bogsjö, K., and Rychlik, I. (2009) Vehicle fatigue damage caused by road irregularities, *Fatigue and Fracture of Engineering Materials and Structures*, Vol. **32**, pp. 391-402.

1.55 Bengtsson A., K., Bogsjö, K and Rychlik, I. (2009) Uncertainty of estimated rainflow damage for random loads, *Marine Structures*, Vol. 22, pp. 261-274.

1.57 Butler R., Machado, U. and Rychlik, I. (2009) Distribution of wave crests in non-Gaussian sea, *Applied Ocean Research*, Vol. 31, pp. 57-64.

1.58 Mao, W., Rychlik, I. Storhaug, G.(2010) Safety Index of Fatigue Failure for Ship Structure Details, *Journal of Ship Research*, **54**, pp. 197-208.

1.59 Mao, W. Ringsberg, J. Rychlik, I. Storhaug, G.(2010) Estimation of Fatigue Damage Accumulation in Ships during Variable Sea State Conditions, *Journal of Ship Research*, **54**, pp. 281-293.

1.60 Mao, W. Ringsberg, J. Rychlik, I. Storhaug, G.(2010) Development of a Fatigue Model Useful in Ship Routing Design, *Journal of Ship Research*. Also selected for publication in the *2010 SNAME Transactions*.

1.61 Rychlik, I. Rydén, J. and Andersson, C. (2011) Estimation of return values for significant wave height from satellite data, *Extremes*, **14** pp. 167-186.

1.62 Galtier, T. Gupta, S. Rychlik, I. (2010) Crossings of Second-order Response Processes Subjected to LMA Loadings, *Journal of Probability and Statistics*, Volume 2010 (2010), Article ID 752452, 22 pages doi:10.1155/2010/752452. http://www.hindawi.com/journals/jps/2010/752452.html

1.63 Baxevani, A., Podgórski, K., Rychlik, I. (2011) Dynamically Evolving Gaussian Spatial Fields, to appear in *Extremes*, **14**, pp. 223-251.

1.64 Sarkar, S. Gupta, S. and Rychlik, I. (2011) Wiener Chaos Expansions for Estimating Rain-flow Fatigue Damage in Randomly Vibrating Structures with Uncertain Parameters, *Prob. Eng. Mech.*, vol. **26**, pp. 387-398

1.65 Mao W. and Rychlik, I. (2012) Estimation of Extreme Ship Response. *Journal of Ship Research*, **56**, pp. 23-34.

1.66 Bogsjö, K., Podgrski,K. and Rychlik I (2012) Models for road surface roughness *Vehicle System Dynamics: International Journal of Vehicle Mechanics and Mobility*, **50**, pp. 725-747.

1.67 Mao W., Ringsberg J, Rychlik I. and Li Z., (2012) Theoretical development and validation of a fatigue model for ship routing. *Ships and Offshore Structures*, **7**, pp. 399-415.

1.68 Mao W., Li Z., Ringsberg J, Rychlik I. (2012) Application of a ship-routing fatigue model to case studies of 2800 TEU and 4400 TEU container vessels, *Proceedings of the Institution of Mechanical Engineers, Part M, Journal of Engineering for the Maritime Environment*, **226**, pp. 222-234. (The paper won 2012 SAGE Best Paper Prize for the Journal of Engineering for the Maritime Environment.)

1.69 Kozubowski, T.J., Podgórski, K. and Rychlik. I. (2013) Multivariate generalized Laplace distribution and related random fields. *Journal of Multivariate Analysis*, **113**, pp. 59-72.

1.70 Mao W. and Rychlik, I. (2013) Notes on the prediction of extreme ship responses, *Journal of Offshore Mechanics and Arctic Engineering*, **135(2)**, doi:10.1115/1.4023202.

1.71 Jith, J. Gupta, S. and Rychlik, I. (2013) Crossing Statistics of Quadratic Transformations of LMA Processes, *Probabilistic Engineering Mechanics*, **33**, pp. 9–17.

1.73 Johannesson, P. and Rychlik, I. (2013) Modelling of road profiles using roughness indicators, to appear in*International Journal of Vehicle Design*

1.73 Rychlik, I. (2013) Note on modeling of fatigue damage rates for non-Gaussian stresses. *Fatigue & Fracture of Engineering Materials & Structures*, on line DOI: 10.1111/ffe.12042.

1.74 Kvarnström, M., Podgórski, K. and Rychlik, I. (2013) Laplace moving average model for multi-axial responses applied to fatigue analysis of a cultivator, *Probabilistic Engng. Mechanics*, **34**, pp. 12-25.

1.75 Podgórski, K. and Rychlik, I. (2013) A model of significant wave height for reliability assessment of a ship, *Journal of Marine Systems*, (March 2013), http://dx.doi.org/10.1016/j.jmarsys.2013.03.006.

1.76 Bitner-Gregersen, E.M., Bhattacharya, S.K., Chatjigeorgiou, I. K., Eames, I., Ellermann, K., Ewans, K. Hermanski, G., Michael C. Johnson, M.C., Ning Ma, N. Christophe Maisondieu, C., Nilva, A., Rychlik, I. Waseda, T. (2013) Recent developments of environmental description with focus on uncertainties, under revision for *Journal of Ocean Engineering*

Papers in reviewed conference proceedings

2.1 Lindgren, G. and Rychlik, I. (1986) Rain flow cycle distribution for fatigue life prediction under Gaussian load processes. *Proceedings of the 1'st World Congress of the Bernoulli Society, Tashkent, VNU Science Press* **2**, pp. 495-500

2.2 Rychlik, I. and Grigoriu, M. (1992) Reliability analysis of degrading elasto-plastic oscillators. *Proceedings of Sixth Specialty Conference on Probabilistic Mechanics and Structural & Geotechnical Reliability, ASCE, Denver 1992, edited by Y. K. Lin.*, pp. 304-307

2.3 Grigoriu, M. and Rychlik, I. (1992) Reliability analysis of degrading dynamic systems with applications. *Proceedings of Sixth Specialty Conference on Probabilistic Mechanics and Structural & Geotechnical Reliability, ASCE, Denver 1992, edited by Y. K. Lin.*, pp. 300-303

2.4 Rychlik, I. and Lindgren, G. (1992) First passage and wave density by means of the computer package CROSSREG. *Nonlinear Stochastic Mechanics, edited by N. Bellomo and F. Casciati, Springer Verlag*, pp. 453-463

2.5 Rychlik I. and Lindgren G. (1996) Fatigue analysis with stochastic loads. *Probabilistic Mechanics & Structural Reliability, Proceedings of the Seventh Specialty Conference Engineering Mechanics and Structural Divs./ASCE held August 7-9, 1966, Worcester, Mass.*, pp. 46-49.

2.6 Rychlik I. and Leadbetter M. R. (1997) Analysis of ocean waves by crossing- and oscillation-intensities. *Proceedings of the 7th ISOPE conference*, **ISBN 1-880653-31-1**, pp. 206-213.

2.7 Rychlik I. (1999) Rainflow cycles, Markov Chains and Electrical Circuits, *Stochastic Structural Dynamics* edited by Spencer B.F. Jr& Johnson E.A., Balkema A.A. **ISBN 90 5809 0248**, pp. 295-298.

2.8 Lindgren G., Rychlik I. and Prevosto M. (1999) Stochastic Doppler shift and encountered wave height and period in Gaussian waves. *Stochastic Structural Dynamics* edited by Spencer B.F. Jr& Johnson E.A., Balkema A.A. **ISBN 90 5809 0248**, pp. 229-234.

2.9 Brodtkorb, P.A., Johannesson, P., Lindgren, G. , Rychlik, I., Rydén, J., and Sjö, E. (2000) WAFO – a Matlab toolbox for analysis of random waves and loads. *Proceedings of the 10th ISOPE conference*, **ISBN 1-880653-49**, Vol III , pp. 343-350

2.10 Pitoiset, X. Rychlik, I. and Preumont, A. (2001) Spectral formulations of multiaxial high-cycle fatigue criteria subjected to random loads. *6th International Conference on Biaxial/Multiaxial Fatigue and Fracture, Lisbon 2001.*

2.11 Rydén, J., van Iseghem, S., Olagnon, M., and Rychlik I. (2002) Height-Length Joint Distributions for Computation of Static Wave Loading on Floating Bodies. *Proceedings of the 12th ISOPE conference.* **ISBN 1-88065-358-3**, Vol III, pp. 12-17

2.12 Baxevani, A. Podgórski, K., and Rychlik, I. (2002) How fast are the two-dimensional Gaussian waves? *Proceedings of the 12th ISOPE conference.* **ISBN 1-88065-358-3**, Vol III, pp. 18-25.

2.13 Podgórski, K., and Rychlik, I. (2002) Statistical properties of envelope field for Gaussian sea surface. *Proceedings of the 21th International Conference on Offshore Mechanics and Arctic Engineering OMAE'02*, **ISBN 0791835995**,

2.14 Baxevani, A., Rychlik, I. and Wilsson R. (2003) Modelling significant wave height in the North Atlantic. *Proceedings of the 13th ISOPE conference* **ISBN 1-88065-360-5**, Vol III, pp. 30-37.

2.15 Baxevani, A., Rychlik, I. (2004) Relation between velocities and global maximum for Gaussian seas. *Proceedings of the 14th ISOPE conference*, **ISBN 1-880653-62-1**, Vol III, pp. 47-54.

2.16 Baxevani, A., Hagberg, O. and Rychlik, I. (2005) Note on the distribution of extreme waves crests. *Proceedings of the 24th International Conference on Offshore Mechanics and Arctic Engineering OMAE'05*, **ISBN 0791841960**.

2.17 Åberg, S., Rychlik, I. (2006) Role of Wave Velocity for Encountered Wave Statistics. *Proceedings of the 16th ISOPE conference, San Francisco*

2.18 Baxevani, A., Borget, C. and Rychlik, I.: Spatial models for the variability of the significant wave height on the world oceans. Proceedings ISOPE-2007.

2.19 Bogsjö, K and Rychlik, I. (2009) Uncertainty of estimated damage for random loads, to be presented at Second Int. Conf. on Variable Amplitude Loading, March 2009, Darmstadt/Germany.

2.20 Mao, W. Ringsberg, J. Rychlik, I. Storhaug, G. (2009) Comparison between a fatigue model for voyage planning and measurements of a container vessel. OMAE2009 Honolulu.

2.21 Galtier, T., Gupta, S. and Rychlik, I. (2010) Non-Gaussian Modeling of Second-Order Dynamical System, OMAE2010 Shanghai.

2.22 Mao, W., Ringsberg, J.W. and Rychlik, I. (2010) The Effect of Whipping/Springing on Fatigue Damage and Extreme Response of Ship Structures, OMAE2010 Shanghai.

2.23 Mao, W., Li, Z. Ringsberg, J.W., Rychlik, I., and Galtier, T. (2010) Estimation of Wave Loading Induced Fatigue Accumulation and Extreme Response of Container Ships in Severe Seas, OMAE2010 Shanghai.

2.24 Mao, W., Li, Z., Ringsberg, J.W., and Rychlik I. (2011) Assessment of full-scale measurements with regard to extreme hogging and sagging of container ships, OMAE2011 Rotterdam.

2.25 Mao, W. and Rychlik, I. (2011) On Estimation of Extreme Ship Responses Using Upcrossing Spectrum. MARSTRUCT 2011, 27-30th March, Hamburg, Germany.

2.26 Sarkar, S. Gupta, S. and Rychlik, I. (2011) Investigating growth of rain-flow fatigue damage in a wind turbine blade using Wiener chaos expansions. *13th International Conference on Wind Engineering*, Amsterdam July 10-15.

2.27 Mao, W., Li, Z., Ringsberg, J.W., and Rychlik I. (2012) Fatigue variation in ships due to the variability of environmental loads, OMAE2012 Rio De Janerio Brazil.

2.28 Mao, W. and Rychlik I. (2012) Statistical approximation of rainflow damages for ship fatigue analysis, ISOPE2012 Rhodos.

2.29 Mao, W., Ringsberg, J. and Rychlik I. (2012) What is potential of using ship fatigue routing in terms of fatigue life extension, ISOPE2012 Rhodos. N. of cit.: **0**

2.30 Jith, J., Gupta, S. and Rychlik I. (2012) Local maxima in quadratic LMA processes, 11th ASCE conference, Notre Dame, In. N. of cit.: **0**

2.31 W. Fricke, R. Bronsart (Eds.) (2012) Contributed to *18th International Ship and Offshore Structures Congress (ISSC 2012)* - ISBN 978-3-877700-131-5,8. http://139.30.101.246/ISSC2012/images/stories/Proceedings/is vol1-com-I.1.pdf

2.32 Venkatesh, S., Sarkar, S., and Rychlik, I. (2013) Analysis of a fluid structure interaction system under random gust, *ICOSSAR 2013*, pp. 1-7.

Books and Lecture Notes

3.1 Rychlik, I. (1986) Statistical wave analysis with application to fatigue. *Dissertation summary*, pp. 1-15

3.2 Rychlik, I. (1989) On the distribution of random waves and cycles. *Springers Lecture Notes in Statistics, Extreme Value Theory*, **51**, edited by J. Hsler and R.-D. Reiss, pp. 100-113

3.3 Rychlik, I. (1992) Rainflow cycle distribution in random loads. *The Rainflow Method in Fatigue: The Tatsuo Endo Memorial Volume*, edited by Y. Murakami, Butterworth and Heinemann, **ISBN 0750605049**, pp. 21-30.

3.4 Rychlik, I. (1993) Characterization of random fatigue loads. *Stochastic Approach to Fatigue: experiments, modeling and reliability estimation*, edited by K. Sobczyk, Springer Verlag,**ISBN 3211824529**, pp. 35-78

3.5 Lindgren, G. and Rychlik, I. (1994) Tillförlitlighet and Säkerhet - Statististiska metoder och tekniker. **ISSN 0281-1944** pp. 1–240.

3.6 Leadbetter M. R. and Rychlik I.(1998) Extremes and high level exceedances of stationary random fields for ocean structure reliability, *Stochastically Excited Nonlinear Ocean Structures*, edited by M.F. Shlesinger and T. Swean, World Scientific, **ISBN 981-02-3392-2** pp. 156-186.

3.7 Rychlik I.(2004) Five lectures on reliability applications of Rice's formula for the intensity of level crossings. *Reliability-Based Design and Optimisation*, IFTR Warsaw, **ISSN 1642-0578**, pp. 241-323.

3.8 Rychlik I. and Rydén J. (2006) *Probability and Risk Analysis. An Introduction for Engineers*, Springer, **ISBN: 978-3-540-24223-9**, pp. 1-282.

3.9 Bengtsson A., K., Bogsjö, K and Rychlik, I. (2009) Fatigue Damage Uncertainty pp. 151-171, chapter in *Robust Design Methodology for Reliability*, Wiley.

3.10 Rychlik, I. (2013) Cycle counting. *Encyclopedia of Tribology*, ISBN 978-0-387-92896-8, Springer. ed.

3.11 Johannesson, P., Speckert, M., Svensson, T., Dressler, K., Rychlik, I., de Mar, J., and Marquardt, A. (2013) Load Analysis for Durability Applications , Wiley.

Papers in conference proceedings

4.1 Rychlik, I. (1987) Rain flow cycle distribution for a stationary Gaussian load process. Presented at Seminar on "Applications of probabilistic methods in the design of structures", Gothenburg 1986. *Chalmers University of Technology, Div. of Structural Design 1987:3*, pp. 1-21.

4.2 Rychlik I. and Lindgren G. (1995) Fatigue analysis with stochastic loads, *Nordic Matlab conference, edited by Lars Langemyr, Comsol Stockholm*, pp. II 32 - II 37.

4.3 Lindgren G. and Rychlik I. (1966) Confidence Sets for Level Contours on Sparsely Observed Images *Proceedings Symposium on Image Analysis, Ed. Linde P. and Sparr G.*, ISBN 91-630-4234-7, pp. 159-163.

4.4 Wilson R.J. and Rychlik I. (1996) Segmentation of Mineral Textures. Image Segmentation Workshop 96, The Australian Pattern Recognition Society, Sydney Australia.

4.5 Rychlik I. (2001) Description of ocean waves: applications of generalised Rice formula. *23rd European Meeting of Statisticians, Funchal, August 2001*, pp. 1-2.

4.6 Rychlik I. (2001) Waves on random sea. *Actes des XXXIIIémes Journées de Statistique Nantes 2001*, pp. 112-115.

4.7 Rychlik I. and Leadbetter M.R. (2007) Estimating capsize risk for a vessel in a following sea. *ISI 2007 meeting in Lisbon* pp. 1-4

4.8 Podgórski, K., and Rychlik, I. (2008) Envelope and its distributions. *Applied probability conference.*

4.9 Leadbetter, M. R. Rychlik, I. and Stambaugh, K. (2011) Estimating Dynamic Stability Event Probabilities from Simulation and Wave Modeling Methods, to be presented at *12th International Ship Stability Workshop*, June 12-15, Washington D.C., pp. 1–4.

4.10 Jith, J., Gupta, S. and Rychlik, I. (2012) Estimatung crossing rate statistics of second order response of structures subjected to LMA loadings *ISEUSAM-2012*, Shibpur, India. July 10-15.