Professor Rolands Rikards

See:
http://www.lza.lv/scientists/rikardsr.htm
http://orlabs.oclc.org/identities/lccn-n88-275338
http://www.paperbackswap.com/Rolands-Rikards/author/
http://www.gramata21.lv/users/rikards_rolands/

Director, Institute of Materials and Structures
Riga Technical University, Latvia

Interests:
Solid and Structural Mechanics
Composite Materials
Structural Optimization and Identification Problems
Fracture Mechanics
Politics and Democracy

Brief Description of Main Research:
Finite Element Analysis of Sandwich and Laminated Composite Structures
Optimal Design and Identification of Composite Materials and Structures
Delamination Fracture Analysis of Laminated Composites

Languages: Latvian, English, German, Russian

Education:
Riga Technical University (Faculty of Civil Engineering), Dipl.ing., 1966
Dr.tech. (Candidate of Science in former USSR, PhD in Western countries), Latvian Academy of Sciences, 1970
Dr.sc.tech. (Doctor of Science in former USSR), Moscow Institute of Mechanical Engineering, Moscow, Russia, 1983
Dr.habil.ing., Latvian Council of Science, 1992

Experience:
Researcher Associate, Institute of Polymer Mechanics, Latvian Academy of Science, 1968-1981
Associate Professor, Department of Strength of Materials, Riga Technical University, 1981-1986
Professor, Department of Strength of Materials, Riga Technical University, 1986-1990
Member of Parliament of Latvia, 1990-1993
Professor, Specialized Institute of Computer Analysis of Structures, Riga Technical University, 1994-2001
Professor, Director of Institute of Materials and Structures, Riga Technical University, 2001-

Honors and Awards:
1. Corresponding Member, Latvian Academy of Sciences, 1992-1997
2. Full Member, Latvian Academy of Sciences, 1997
3. The Latvian Academy of Sciences Award for the monograph "Stability of Composite Shells", 1975
4. The Latvian Academy of Sciences Award for the monograph "Optimization of Composite Cylindrical Shells", 1979
5. The Latvian Academy of Sciences Fr. Zander's Award in Engineering Sciences for the investigations "Development of Computer Methods of Analysis of Structures", 1996
6. The Three Stars Order (Republic of Latvia) for the progress in scientific research, 1997
7. The Three Stars Order (Republic of Latvia) for political activities (1988-1993) in restoration of independence of Latvia, 2000
8. The Award of Cabinet of Ministers (Republic of Latvia) for Significant contribution in materials science and technologies, 2003

Professional Activities and Memberships:
Member, IACM (International Association of Computational Mechanics), 1991-
Member, ISSMO (International Society of Structural and Multidisciplinary Optimization), 1995-
Member, Editorial Advisory Board for "Mechanics of Composite Materials".
Contributing Editor, International journal "Mechanics of Advanced Materials and Structures".

Personal:
Married. Wife, Baiba Ozola (b. 1948) is Dr. biol. (Latvian Agricultural University). Has two children - Viesturs (b. 1981) and Martins (b. 1988). Hobby - sports (skiing, surfing, canoe on wild rivers). Has passion for music and painting. Favorite composers are L. van Beethoven, Andrew Lloyd Webber and Imants Kalnins. Favorite painters are Leonardo da Vinci, Picasso and Rudolfs Pinnis. Favorite dish - fish. Favorite drink - good wine.

Invited Lectures:

Dynamic and Damping Analysis of Composite Structures. Invited lecture. University of Aalborg, Department of Mechanical Engineering, Denmark, 1992

Damping Analysis of Composite Materials. Invited lecture. RISO National Laboratory, Materials Research Department, Roskilde, Denmark, 1992

Dynamic Analysis and Optimal Design of Sandwich and Laminated Composite Structures. Invited lecture. Berlin Technical University, Germany, 1993

Optimization of Composite Structures, Invited lecture. Technical University of Munich, Germany, 1993

Dynamic and Damping Analysis of Composite Structures. Invited lecture. University of Innsbruck, Austria, 1993

Dynamic and Damping Analysis of Composite Structures. Invited lecture. Delft University of Technology, The Netherlands, 1993

Dynamic and Damping Analysis of Composite Structures. Invited lecture. University of Siegen, Germany, 1993

Finite Element Analysis of Shells. Invited lecture. Aristotle University of Thessaloniki, Greece, 1994

Finite Element Analysis of Composite Structures. Invited lecture. Technical University of Lisbon, Portugal, 1995

Damping the Vibrations of Composite Plates and Shells. Invited lecture. Imperial College of Science Technology and Medicine, England, UK, 1995

Design of Composites with Recycled Particles. Invited lecture. Institute of Structure of Matter, Madrid, 1995

Damping Analysis of Structures. Invited lecture. University of Magdeburg, Institute of Materials Science, Germany, 1996

Method of Experiment Design in Structural Optimization and Identification. Georgia Institute of Technology, USA, 1999

Identification Problems of Composite Materials and Structures, Texas A&M University, USA, 1999

Identification Problems of Composite Materials and Structures, Drexel University, USA, 1999

Finite Element Analysis and Design of Structures for Different Applications in Engineering, University of Kassel, Institute of Materials Science, Germany, 2001

Modern Trends in Composite Laminates, CISM Courses and Lectures, International Centre for Mechanical Sciences, Udine, Italy, 2002

Application of Composite Materials in European Aerospace and Shipbuilding Industry, University of Kassel, Institute of Materials Science, Germany, 2001

Courses

Mechanics of Materials, Riga Technical University, 1981-1990

Finite Element Method in Solid Mechanics, Riga Technical University, 1986-1989;

Introduction in Finite Element Method, University of Kassel, Institute of Materials Science, Germany, 1995

Introduction in Mechanics of Composite Materials, First School on Composite Materials in Mexico, University of Colima, Mexico, 1996; University of Kassel, Institute of Materials Science, Germany, 1996

Fracture Mechanics of Composite Materials. Course of Lectures, University of Kassel, Institute of Material Science, Germany, 1997; University of Halle, Institute of Applied Mechanics, Germany, 1997

Methods of Identification of Material Properties. Course of Lectures, University of Kassel, Institute of Materials Science, Germany, 1998

Finite Element Analysis of Laminated Structures. Course of Lectures, University of Kassel, Institute of Materials Science, Germany, 1999

Finite Element Method. Course of Lectures, Riga Technical University, 1999-

Advanced Materials in Civil Engineering, Riga Technical University, 1999-

Structural Optimization, Riga Technical University, 2003-

Recent/Representative Publications:

Five books and more than 300 articles on mechanics of solids

R. Rikards, A. Chate, A. Korjakin. Vibration and damping analysis of laminated composite plates by FE method. Engineering Computations, 1995, 12 (1), pp.61-74.

R. Rikards, A.Chate. Optimal design of sandwich and laminated composite plates based on planning of experiment. Structural Optimization, 1995, 10 (1), pp.46-53.

R. Rikards, F.-G. Buchholz, and H. Wang. Finite element analysis of delamination cracks of cross-ply laminates. Mechanics of Composite Materials and Structures, 1995, 2, pp.281-294.

H. Altenbach, J. Altenbach, R. Rikards. Introduction in Mechanics of Laminated and Sandwich Structures, Deutscher Verlag fuer Grundstoffindustrie, Stuttgart, 1996, 410 p, (in German). Deutscher Verlag fuer Grundstoffindustrie, Stuttgart, 1996, 410 p, (in German).

R. Rikards, F.-G. Buchholz, A. K. Bledzki, G. Wacker, and A. Korjakin. Mode I, mode II and mixed mode I/II interlaminar fracture toughness of GFRP influenced by fibre surface treatment. Mechanics of Composite Materials, 1996, 32 (5), pp.636-662.

Rikards, R. and Chate, A. K., Vibration and damping analysis of laminated composite and sandwich shells. Mechanics of Composite Materials and Structures, 4, (1997), 209-232.

Rikards, R., Baltá Calleja F. J., Flores, A., Rueda. D. R. and Kushnevski, V., Study of elastic properties of polymers from microhardness tests. J. of Polymer Engineering, 17, No. 3, 1997, 179-196.

Buchholz, F.-G., Rikards, R. and Wang, H., Computational analysis of interlaminar fracture of laminated composites. Int. J. of Fracture, 86, 1997, 37-57.

Rikards, R., Flores, A., Ania, F., Kushnevski, V. and Balta Calleja, F. J., Numerical-Experimental method for the identification of plastic properties of polymers from microhardness tests. Computational Materials Science, 11, 1998, 233-244.

Rikards, R. Korjakin, A., Buchholz, F.-G., Wang, H., Bledzki, A. K. and Wacker, G., Interlaminar fracture toughness of GFRP influenced by fiber surface treatment. J. Composite Materials, 32, 1998, 1528-1559.

Rikards, R. and Chate A., Identification of elastic properties of composites by method of planning of experiments, Composite Structures, 42 (3), 1998, 257-263.

Korjakin, A., Rikards, R., Buchholz, F.-G., Wang, H., Bledzki, A.K. and Kessler, A. Comparative study of interlaminar fracture toughness of GFRP with different fibre surface treatments, Polymer Composites, 19 (6), 1998, 793-806.

Rikards, R., F.-G. Buchholz, H. Wang, A. K. Bledzki, A. Korjakin, and H.-A. Richard. Investigation of mixed mode I/II interlaminar fracture toughness of laminated composites by using a CTS type specimen, Engineering Fracture Mechanics, 61 (3/4), 1998, 325-342.

Rikards, R., Chate, A., Steinchen, W., Kessler, A. and Bledzki, A. K. Method for identification of elastic properties of laminates based on experiment design, Composites. Part B, 30, 1999, 279-289.

Bledzki, A. K., Kessler, A., Rikards, R. and Chate A. Determination of elastic constants of glass/epoxy unidirectional laminates by the vibration testing of plates, Composites Science & Technology, 59, 1999, 2015-2024.

Rikards, R. Interlaminar fracture behaviour of laminated composites, Computers & Structures, 76, 2000, 11-18.

Rikards R., Method for identification of elastic properties of laminates. In: Inverse Problems in Engineering Mechanics II. Proc. Int. Symp. on Inverse Problems in Engineering Mechanics (ISIP 2000), March 7-10, 2000, Nagano City, Japan. Eds. M. Tanaka and G. S. Dulikravich, Elsevier, Amsterdam, pp. 161-170.

Rikards R., Chate A., Ozolinsh O., Analysis for buckling and vibrations of composite stiffened shells. Composite Structures, 51, 2001, 361-370.

R.Rikards and A.Flores. Numerical modelling of microhardness tests for polymer materials. – J.Macromolecular Sci., Physics, 2001, vol.B40(5), pp.763-773.

R.Rikards, A.Chate, G.Gailis. Identification of elastic properties of laminates based on experimental design. – Int.J. Solids and Structures, 2001, vol.38, pp.5097-5115.

Rikards R., Cate A. Galigo elementu metode, RTU izdevnieciba, 2002, 130 lpp.

Rikards R., Auzins J. Response surface method for solution of structural identification problems. In: Inverse Problems in Engineering : Theory and Practice – Vol. 1. 4th International Conference on Inverse Problems in Engineering, Rio de Janeiro, Brazil, 2002, ed. H. Orlande, Rio de Janeiro, e-papers, 2002, p. 243-250.

Latvijas Zinatnieki. Latvijas Zinatnu akademijas akademikis Rolands Rikards. Biobibliografija, sastaditaja M. Neilande, redaktore L. Levinoka, RTU Zinatniska biblioteka, Latvijas Akademiska biblioteka, Riga, 2002, 146 lpp.

Rikards R., Abramovich H., Green T., Auzins J., Chate A., Identification of elastic properties of composite laminates. Mechanics of Advanced Materials and Structures, 2003, vol. 10, pp. 335-352.

Rikards R. Identification of mechanical properties of laminates. In: Modern Trends in Composite Laminates Mechanics. CISM Courses and Lectures No. 448, eds. H. Altenbach, W. Becker, Springer, Wien, 2003, pp. 181-225.

R. Rikards, H. Abramovich, J. Auzins, A. Korjakins, O. Ozolinsh, K. Kalnins and T. Green. Surrogate models for optimum design of stiffened composite shells, Composite Structures, Vol. 63, No. 2, (2004), p. 243-251.