



With deep sadness we announce that Professor Valdis Kalkis of the University of Latvia passed away on 12th of July, 2014. Professor Kalkis will always be remembered as the founder of scientific ergonomics in Latvia. He was one of the first to obtain the title of certified European ergonomist (Eur.Erg.) in Latvia.

Professor Valdis Kalkis worked more than 40 years at the University of Latvia in Faculty of Chemistry. With his enthusiasm and wisdom he knew how to convince students to become actively involved in scientific research, educated many young scientists in the chemical sciences and gave practical skills and knowledge to professionals not only in chemical science, but also in occupational safety, occupational health and ergonomics.

Professor Valdis Kalkis studied at three universities; the University of Latvia, Faculty of Chemistry, Riga Technical University, Faculty of Chemistry and Saint Petersburg State University, Faculty of Radiochemistry. He focused passionately on scientific research and received the acknowledgement of habilitated doctor in chemistry (Dr.habil.chem.).

Professor Kalkis was the first Latvian among the pioneers who developed and participated in the research at the Salaspils Nuclear Reactor (<http://www.britishpathe.com/video/atomic-reactor-nears-completion-aka-atomic-reactor/query/RUSSIAN+ATOM>), in the late 1960`s where he worked in close cooperation with the world's leading physicists and radiation chemists.

After the collapse of the Soviet Union in the early 1990s, Professor Valdis Kalkis helped develop the field of occupational health and safety in Latvia and started the first courses in work safety and risk assessment methods. He also showed great interest in ergonomics, establishing 15 years ago a completely new higher professional study program in Latvia that was later transformed into the master study program “Work Environment and Expertise” focusing on health and safety in the work environment, the wellbeing of employees, ergonomics and organizational performance. Professor Kalkis has been the director of this master study program since 2001. He developed the following courses in Latvia; “*Work Environment Expertise*”, “*Work Environment and Safety*”, “*Work environment risk factors*” and “*Basics of Ergonomics*”. Professor Valdis Kalkis also made significant contributions to the development of legislation in the field of occupational health and safety. He introduced the scientific approach to ergonomics in Latvia and in 2006 he was the initiator and co-founder of the Latvian Ergonomics Society.

Professor Valdis Kalkis is the author and co-author of more than 500 scientific publications, monographs and books. The first books were published in 1994, 1996 and 1999 about Work Environment Risk Factors, followed by “Work Environment Risk Factors and Workers Health”, 2001 (in Latvian); “Work Environment Risk Assessment. Handbook”, 2003 (in Latvian); “The Guidelines of Work Environment Risk Assessment”, EU PHARE Latvian-Spain Project (LE/IB-C-01), 2003; “Risk factors at the workplace”, 2007 (in Latvian); “Work Environment Risk Assessment Methods”, 2008, which broadly covered modern ergonomics risk assessment methods; “Basics of Ergonomics”, 2008 (in Latvian). Professor Kalkis’s newest book “Occupational Health and Workplace risk factors”, 2014 (in Latvian), describes the main work

environment risk factors, the macro-ergonomics approach and the economic aspects of workplace interventions.

Professor Kalkis received patents for advanced inventions and represented Latvia in worldwide scientific congresses and conferences. His scientific and professional activities in the field of occupational health and safety, including ergonomics, has been highly appreciated at the University of Latvia, the Latvian Academy of Sciences, as well as in the wider world (International Ergonomics Association, FEES – Federation of European Ergonomics Societies, CREE – Centre for Registration of European Ergonomists). He received various honors and titles (including the title certified European Ergonomist) and was appreciated by local and international colleagues, experts and scientists. In 2013 Professor Valdis Kalkis was named as the greatest scientist of the year at the University of Latvia (<http://www.lu.lv/eng/news/t/25302/>).

For Professor Kalkis the meaning of a healthy work environment also meant ethical relationships and Christian values among workers and with other colleagues – scientists.

Main career facts:

Personal information:

VALDIS KALKIS, Dr.habil.chem., Professor

Education

1955-1957 Latvian State University, Faculty of Chemistry (*cum laude*)
1958-1961 Sankt-Petersburg State University, Faculty of Radiochemistry (*cum laude*)
1958-1961 Riga Technical University, Faculty of Chemistry (*cum laude*)

Practical studies in foreign countries:

Denmark, Denmark Technical University (Polymer chemistry), 1994
Sweden, Brunswick High School (OHS evaluation), 1997
Norway, Oslo (Workplaces Health Promotion), 2000
USA, Las Vegas, Miami, San Francisco (Human Factors and Ergonomics, 2008 – 2012)

Work experience

1973- 2014 Faculty of Chemistry, University of Latvia (assistant professor, 1990-2005; head of the Department of Inorganic chemistry, 1990-1997; vice-dean, 1993-2000; associate professor, 2001-2005; professor, 2005-2014)
1968-1973 Institute of Wood chemistry, Latvian Academy of Sciences (senior researcher)
1961-1967 Latvian Nuclear Reactor, Institute of Physics, Latvian Academy of Sciences (chief engineer of Radiochemistry service)

Research directions

Work environment health and safety, ergonomics, risk assessment methods at the workplace
Radiation chemistry of polymers (research of physical, thermomechanical and chemical properties of polymer compositions and materials); research on the properties of liquid crystalline polymers and its blends with thermoplastics polymers and elastomers; research on the polymer nanocomposites

Professional Activities and Memberships

Council member of the Federation of European Ergonomics Societies
Council member of the International Ergonomics Association
Board member of the Latvian Ergonomics Society
Member of Professor of Chemistry Council (University of Latvia)
Member of Promotion Council in Chemistry (University of Latvia)
Member of Promotion Council in Chemical TechnologyP02 (Riga Technical university)
Member of Latvian Material Research Society
Member of the Radiation and Nuclear Safety Expert Commission of the Ministry of the Environmental Protection and Regional Development of the Republic of Latvia
Member of Latvian Council of Science Expert Committee (Scientific Principles of Technology: Materials, Chemistry and Pharmacy)
Member of Habilitation and Promotion Council of the Institute of Polymer Mechanics (University of Latvia)

Member of Management Team (Ministry of Education and Science of Latvia) for the establishment of National Cyclotron Centre

Main Publications in Ergonomics (together over 300 publications, 12 textbooks, chapters of books and 30 patents)

Kalkis V., Roja Z., Kalkis H. Methodology of Physical Load Risk Assessment in Latvia. In the book *Advances in Physical Ergonomics and Human Factors: Part II*, Taylor & Francis USA Publishing, 2014, p. 299 – 306.

Roja Z., **Kalkis V.**, Kalkis H., Roja I., Dundurs J. Impact of Physical Load on Workability of Social Caregivers. In the book *Advances in Physical Ergonomics and Human Factors: Part II*, Taylor & Francis USA Publishing, p. 307 – 312.

Kalkis H., Roja Z., **Kalkis V.** Physical Load Analysis for Hotel Cleaning Staff. In the book *Agronomy research*, published by Estonian University of Life sciences. Scientific papers of the 5th International Conference on Biosystems Engineering, 2014. pp. 450-458.

Kalkis H., **Kalkis V.**, Roja Ž. Ergonomic Risk in Woodworking Production Processes. SPOSHO: Book of the International Symposium on Occupational Safety and Hygiene-SHO 2014, pp. 168-170.

Roja Z., **Kalkis V.**, Roja I., Kalkis H. The effects of a medical hypnotherapy on clothing industry employees suffering from chronic pain. *Journal of Occupational Medicine and Toxicology*, 2013, 8:25.

Kalkis H., Roja Z., **Kalkis V.**, Rezepina I. Ergonomics approach in entrepreneurship. In the book *Agronomy research*, published by Estonian University of Life sciences. Scientific papers of the 4th International Conference on Biosystems Engineering, 2013, pp. 413-420.

Reinholds I., **Kalkis V.**, and Maksimovs R. D. The Effect of Ionizing Radiation and Magnetic Field on Deformation Properties of High Density Polyethylene/Acrylonitrile-Butadiene Composites. *Journal of Chemistry and Chemical Engineering*, 2012, Vol.6, 242-249.

Kalkis V., Roja Z., Kalkis H. Determination of Muscles fatigue for production packer and sewing machine operators in furniture enterprise. In the book: *Advances in Physical Ergonomics and Safety*, T. Z. Ahram and W. Karwowski (Eds), CRC Press Taylor&Francis Group, 2012, pp. 550-558.

Roja Z., **Kalkis V.**, Roja I., Kalkis H. Heart rate monitoring – physical load objective evaluation method for nurses and assistant of nurses. In the book: *Advances in Physical Ergonomics and Safety*, T. Z. Ahram and W. Karwowski (Eds), CRC Press Taylor&Francis Group, 2012, pp. 559-564.

Kalkis H., **Kalkis V.**, Roja Z., Praude V., Rezepina I. Ergonomics and quality interventions in woodworking technological processes for lightening the workload. In the book: *Advances in Physical Ergonomics and Safety*, T. Z. Ahram and W. Karwowski (Eds), CRC Press Taylor&Francis Group, 2012, pp. 250-257.

Reinholds I., **Kalkis V.**, Zicans J., Meri M.R., Grigalovica A., Maiorov M. Mechanical, structural and magnetic properties of polypropylene/iron ferrite magnetic nanocomposites. *Materials Science and Engineering*, IOP Conf. Series, 38, 2012, doi: 10.1088/1757-899X/38/1/012030.

Roja Z., **Kalkis V.**, Kalkis H., Palmsalu I., Ievins J., Berzins J. Influence of Combined Labour Environment Risk Factors on Employees of the Sewing Enterprise and Practical Solutions. *Riga Technical University Scientific Papers: Safety of Technogenic Environment*. 2012, pp. 57-60.

Reinholds I., **Kalkis V.**, Maksimov R. D., Zicans J., Merijs Meri R. The Effect of Radiation Modification and of Uniform Magnetic Field on the Deformation Properties of Polymer Composite Blends. *Mechanics of Composite Materials*, Vol. 47, No. 5, November, 2011, 497-504.

Elksnite I., Merijs-Meri R., Reinholds I., **Kalkis V.**, Zicans J., Kalnins M. Thermal Analysis, Mechanical and Rheological Behaviour of Melt Manufactured Polyethylene/Liquid Crystal Polymer Blends "Materials Science", Vol. 17, No. 2, 2011, 145-149.

Roja Z., Roja I., Kalkis H., **Kalkis V.** Rehabilitation Solutions for Health Care Staff after Suffering from Psychoemotional Stress at the Workplace. *Riga Stradins University Collections of Scientific Papers*, 2010, 224-229.

Roja Z., **Kalkis V.**, Remeza I. Investigation of the Work Heaviness Degree and Skeletal Muscles Fatigue for Sewers and Cutters Working in Closing Industry. *Riga Stradins University Collections of Scientific Papers*, 2010, pp. 35-45.

Kalkis H., Rezepina I., Praude V., Roja Z., **Kalkis V.** Manufacturing Process Improvement based on reducing of Ergonomics Risks in Woodworking Enterprise. In the book: *Advances in Human Factors, Ergonomics, and Safety in Manufacturing and Service Industries*, Eds. W. Karwowski and G. Salvendy – CRC Press, Taylor & Francis Group, Boca Raton, London, New York, 2010, pp. 1203-1211.

Roja Z., **Kalkis V.**, Kalkis H., Roja I. Evaluation of Neck, Shoulders, Arms and Hands Muscles Fatigue of Sewers using Myotonometric Method and Effectiveness of Early Multidisciplinary Rehabilitation. In the book: *Advances in Occupational, Social, and Organizational Ergonomics*, Eds. P. Vink and J. Kantola. CRC Press, Taylor & Francis Group, Boca Raton, London, New York, 2010, pp. 431-443.

Kalkis V., Jansone M., Kalkis H. and Svirks J. Workers health and safety in Metalworking industry in relation with physical load (in Latvian). *Scientific Papers*, Riga Stradins University, 2010, pp. 158-163. (In Latvian)

Kalkis H., **Kalkis V.**, Roja Z. Workplace rehabilitation as an Effective Tool for Promoting Employees Workability (S84), *International Journal of Rehabilitation Research*, 2009. Vol. 32 (1), 584-585.

Roja Z., Roja I., Kalkis H., **Kalkis V.**, Vetra A. The Significance of Early Multidisciplinary Rehabilitation in Health Promotion for Workers with VDT Suffering from NSAH Complains. (S85), *International Journal of Rehabilitation Research*, 2009, Vol. 32 (1), 585-586.

Kalkis V., Roja Z., Kalkis H., Pencis I., Svirks J. Ergonomic Risk Assessment of Firefighters-Rescuers Based on Heart Rate Monitoring and Myotonometric Measurements of Skeletal Muscles. Scientific Papers of the 17th World Congress on Ergonomics, 2009, Beijing, China, Proceeding, CD: 1MA0003, 20-22.

Roja Z., **Kalkis V.**, Kalkis H., Pencis I. Assessment of Firefighters-Rescuers Work Severity in Relation Between Interaction of Physical and Mental Load. Papers of Latvian Academy of Sciences. Section B, Vol. 63 (2009), No. 6 (665), pp.20-30.

Kalkis H., Rezepina I., Roja Z., **Kalkis V.**, Goldsteins A. Increasing wood processing company's productivity and competitiveness by implementing healthy environment and applying ergonomics. Scientific Papers of the 11th AHFE International Conference on Human Aspects of Advanced Manufacturing (HAAMAHA), LasVegas, 14-17 July, 2008 (on CD), USA Publishing, 2008, pp. 8-15.

Roja Z., Roja I., **Kalkis V.**, Kalkis H., Svirks J. Evaluation of the muscle tone, elasticity and stiffness in relation to fatigue among genetiscists using myometric method. Scientific Papers of the 11th AE International Conference on Human Aspects of Advanced Manufacturing (HAAMAHA), LasVegas, 14-17 July, 2008, (on CD), pp. 1-8.

Kalkis V., Roja Z. and Kalkis H. Objective Ergonomics risk assessment: heart rate monitoring and muscle tone measurements. Scientific Papers, Riga Technical University, 2008, pp. 137-144. (In Latvian)

Roja Z., **Kalkis V.**, Kalkis H., Goldsteins A. Promoting human resource development by the implementation of ergonomics in the business environment. In the book: Ergonomics in Contemporary Enterprise. 2007. pp. 512.-516.

Roja Z., **Kalkis V.**, Kalkis H. Studies in occupational health and safety in the University of Latvia – base of the successful business development. In the book: Ergonomics in Contemporary Enterprise. 2007, pp. 505-511.

Roja Z., **Kalkis V.**, Eglite M., Vain A., Kalkis H. Assessment of skeletal muscles fatigue of road maintenance workers based on heart rate monitoring and myotonometry. Journal of Occupational medicine and Toxicology, 2006, 1: 20-28.

Roja Z., Eglite M., **Kalkis V.**, Kalkis H. Assessment of Latvian road building workers physical workload using qualitative and quantitative ergonomical risk analysis methods. Proceedings of the Latvian Academy of Sciences, Section B, 2006, Vol.3, 45-56.

Roja Z., **Kalkis V.**, Kalkis H. Muscle fatigue assessment of road builders and pavers using myometric method. Proceedings of International Congress on Ergonomics, IEA Scientific papers: Maastricht, Netherlands, 2006, pp 5-10.