

CURRICULUM VITAE



Viktor Berbyuk

Professor in Mechanical Systems

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Personal data

Date of birth: October 14, 1953. Married, two children.
Home address: Fiolgatan 4, Lgh 1902, SE-421 41 Västra Frölunda, Sweden

Higher education degree

M.Sc. in Mechanics, [Lomonosov Moscow State University](#), Moscow, 1975.

Academic Degrees

Ph.D. in Physics and Mathematics, [Lomonosov Moscow State University](#), 1978;
Docent/Senior Research Fellow in Theoretical Mechanics, Academy of Sc. of USSR,
Moscow, 1985;
Doctor of Sciences in Physics and Mathematics, [Lomonosov Moscow State University](#), Moscow, 1990;
Full Professor in Mechanics, Ministry of Education of Ukraine, Kiev, 1999;
Full Professor in Mechanical Systems, Chalmers University of Technology, Göteborg,
Sweden, 2001.

Employment

Full Professor, Chair of Mechanical Systems, [Chalmers University of Technology](#), Göteborg,
Sweden, July 2001-;

Head, Department of Synthesizing and Optimization of Controlled Systems, [Pidstryhach Institute for Applied Problems of Mechanics and Mathematics](#) of National Academy of Sciences of Ukraine (IAPMM NASU), Lviv, 1992-2001;

Head, Laboratory of Dynamics and Optimization of Discrete-Continual Systems, IAPMM NASU, Lviv, 1988-1992;

Academic Secretary, IAPMM NASU, Lviv, Ukraine, 1986-1988;

Senior Research Fellow, IAPMM NASU, Lviv, Ukraine, 1981-1986;

Junior Research Fellow, IAPMM NASU, Lviv, Ukraine, 1978-1981;

Junior Research Fellow, Institute of Mechanics, Lomonosov Moscow State University, Moscow, 1978.

Guest Professor, (half-time), Department of Mechanics, Chalmers University of Technology, Göteborg, Sweden, 1999-2001;

Professor, (half-time), Department of Radioelectronics, State University "Lvivska Polytechnica", Lviv, Ukraine, 1996-2000;

Professor, (part-time), Department of Mathematics, Lviv State University, Lviv, 1993-1996;

Research Interest

Multibody systems dynamics and control, multi-disciplinary modelling, vibration control, global sensitivity analysis and multi-objective design optimization with applications in vehicle dynamics, machine design, wind power systems, condition monitoring systems, robotics and biomechanics.

Focus Areas

Modelling, dynamics, control and Pareto optimization of engineering systems:

Multibody mechanical systems as well as systems with smart structures, system with magnetorheological, magnetostrictive or other smart material-based actuators, sensors and controllers for active technology development.

Transport:

Vibrations and noise control, adaptive and active suspensions and mounting systems imbedded into vehicles, machines and mechanisms to enhance safety, comfort and energy efficiency.

Energy:

Energy-optimal control of dynamic systems, mechanical power transmission systems, wind power systems, smart material-based power harvesting from vibration for self-powered sensor clusters, vibration control and condition monitoring systems.

Robotics and Bioengineering:

Parallel robots, locomotion systems, intelligent prostheses.

Publications

253 scientific publications, including one monograph, three textbooks, *76 articles* in peer-reviewed journals, *101 papers* - in peer-reviewed conference proceedings, and *6 patents*.

Teaching

Have given courses in mechanics; vibration control; applied system dynamics; structural dynamics control; optimization of dynamic systems; optimal control of dynamic systems and its application in robotics and biomechanics; mathematical modelling and optimization problems of biotechnical systems.

Selected academic services

Chairman of the department of Applied Mechanics Faculty Assembly (6 years);

Member of Chalmers University of Technology Faculty Senate (Fakultetsrådet, 6 years);

Vice-Director of the Vibrations and Smart Structure Lab at CHALMERS (2004-);

Chalmers Research Coordinator of the Transmission Cluster AB Volvo – Scania CV AB – KTH – Chalmers (2011-);

External expert at many promotions to professors and other appointments in Sweden, Finland and Belgium;
Faculty Opponent at 8 Ph.D. dissertations;
Member of grading committees for about 40 Ph.D. theses public defence;
Reviewer for more than 20 international journals, most often for *Multibody System Dynamics*, *Vehicle System Dynamics*, *Journal of Sound and Vibration*, *ASME Journal of Mechanical Design*, *Journal of Intelligent Material Systems and Structures*;
Reviewer for the Swedish Research Council;
Member for about 30 International Conferences Program Committee and Symposiums Organizer; most recently for ECCOMAS Conference on Multibody Dynamics 2019, Duisburg, Germany; International Scientific Conference on Modern Problems of Mechanics and Mathematics, 2018, L'viv, Ukraine; 10th International Conference on Mathematical Problems of Mechanics of Nonhomogeneous Structures, 2019, L'viv, Ukraine;
Member, The National Committee of Theoretical and Applied Mechanics of Ukraine, 1992-2001;
Member, EUROMECH, The European Mechanics Society, 1995-;
Member, ASME, American Society of Mechanical Engineering, 2005-;
Member, SPIE – An International Society Advancing an Interdisciplinary Approach to the Science and Application of Light, 2007-;
Member, The Society of Experimental Mechanics, Inc, SEM, 2010-;
Membership in Editorial Boards: *Multibody System Dynamics*; *Mathematical Modeling and Computing*; *Mathematical Sciences*; *Information Extraction and Processing*; *Visnyk of the Lviv University. Series Applied Mathematics and Computer Science*; *Mechanics and Mathematical Methods*; *Information Technologies and Systems*.

Distinctions and awards

Member of The New York Academy of Sciences;
ASME, The Design Engineering Division Awards Certificate of Appreciation to Viktor Berbyuk in Testimony of the High Record of Associates and the Deep Appreciation of the Society for Valued Services in Advancing the Engineering Profession Through Contribution to the 30th **Mechanisms and Robotics Conference**, Philadelphia, PA, September 2006;
ASME, The Design Engineering Division Awards Certificate of Appreciation to Viktor Berbyuk in Testimony of the High Record of Associates and the Deep Appreciation of the Society for Valued Services in Advancing the Engineering Profession Through Contribution to the 29th Biennial Mechanisms and Robotics Conference, Long Beach, CA, September 2005;
Distinguished Leadership Award to Viktor Berbyuk, The International Directory of Distinguished Leadership, The American Biographical Institute, Inc., Seventh Edition, 1997 and Eighth Edition, 1998;
Award for the best collection of the scientific papers: “*Dynamics and Optimization of Robotic Systems*”, Scientific and Technical Committee of Ukraine, 1984;
Visiting Senior Researcher on a grant of Austrian Ministry of Sciences, (Technical University of Vienna, University of Vienna – one month, 1994/95 academic year);
Visiting Senior Researcher on a grant of the Swedish Institute in Stockholm, (Department of Mechanics, Chalmers University of Technology, Göteborg, Sweden, 4 months during 1996/97 and 1997/98 academic years);
Visiting Professor on a grant of the Wenner-Gren Foundations in Stockholm, (Department of Mechanics, Chalmers University of Technology, Göteborg, Sweden, 6 months, 1998).

Invitation to give presentation at the International Conferences

10th International Conference on Mathematical Problems of Mechanics of Nonhomogeneous Structures, 2019, L'viv, Ukraine; 24th International Congress of Theoretical and Applied Mechanics, (ICTAM2016), Montreal, Canada, 2016; 23th International Congress of Theoretical and Applied Mechanics, (ICTAM2012), Beijing, China, 2012; The VIII International Conference on Mathematical Problems of Mechanics of Inhomogeneous Structures, L'viv, Ukraine, 2010; NATO Advanced Study Institute "Virtual Nonlinear Multibody Systems", Director Prof. Werner Schiehlen, 2002; 20th International Congress of Theoretical and Applied Mechanics, Chicago, USA, 2000, (prenominated session on multibody dynamics); The 6th Ukrainian Conference on Automatic Control, Kharkov, Ukraine, 1999; 12th International Biomechanics Seminar, Göteborg, Sweden, 1999; 19th International Congress of Theoretical and Applied Mechanics, Kyoto, Japan, 1996, (prenominated session on multibody dynamics); *IUTAM* - Symposium on Interaction Between Dynamics and Control in Advanced Mechanical Systems, Eindhoven, NL, 1996; *IUTAM* - Symposium on Optimization of Mechanical Systems, Stuttgart, FRG, 1995.

Patents and Inventions

Kamrani, B., **Berbyuk, V.**, Wäppling, D. and X. Feng, "Method for optimizing the performance of a robot", *United States Patent: US 8,401,698 B2*, Patent publication date: 2013-03-19, Patent application number: 10/580,239; Patent application date: 2004-11-23.

Kamrani, B., **Berbyuk, V.**, Wäppling, D. and X. Feng, "Method for optimizing the performance of a robot", *United States Patent 20070106421*, Kind Code: A1, Application Number: 580239, Filing Date: 23 November 2004, Publication Date: 10 May 2007, <http://www.freepatentsonline.com/20070106421.html>

Kamrani, B., **Berbyuk, V.**, Wäppling, D. and X. Feng, "Method for optimizing the performance of a robot", *International Publication date: 2005-06-02*, International Application number: PCT/SE2004/001722, Priority data: 0303145-7, 23 November 2003, SE, 60/523,941, 24 November 2003.

Farber, B.S., **Berbyuk, V.E.**, Yakobson, Y.S., Yurkevich, V.E., and V.V. Yurkevych, "Femur prosthesis", *Publication date: 1994-03-15*, Application number: SU19915019044 19910807, Priority number: SU19915019044 19910807.

Berbyuk, V.E., and G.F. Ivakh, "Link for manipulator mechanical arm", *Publication number: SU1583290*, Publication date: 1990-08-07, Application number: SU19884464379 19880721, Priority number: SU19884464379 19880721.

Dmytriv, V.M., Pomyliuko, A. V., **Berbyuk, V.E.** and G.F. Ivakh, "Sprayer rod suspension", *Publication number: SU1486134*, Publication date: 1989-06-15, Application number: SU19874336684 19871006, Priority number: SU19874336684 19871006.

External grants funding authorities and companies

VINNOVA, The Swedish Agency for Innovation Systems, 2006-2020;

The Swedish Energy Agency, 2013-2020;

Swedish Wind Power Technology Centre, 2011-2021;

CHARMEC, CHAlmers Railway MEChanics, 2008-2017;

General Motors Powertrain – Sweden AB, 2009-2010;

ASKO Appliances AB, 2006-2011;

Stiftelsen Chalmers Tekniska Högskola, 2008-2009;

National Instruments Corp., 2008-2009;

The 6th Framework Programme of the EC, (MESEMA), 2004-2007;

The Swedish Research Council, 2000-2003.