



Complete CV of Gabor Stepan (2024 August)

Particulars:

Name: Stépán, Gábor
 Birth data: Budapest, 13 December 1953
 Workplace: Faculty of Mechanical Engineering, Department of Applied Mechanics,
 Budapest University of Technology and Economics (BME)
 (former Technical University of Budapest)
 Position: Professor Emeritus (2024-), Full Professor (1995-2023)
 Work address: Muegyetem rkp 3, Budapest H-1111 Hungary
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 E-mail: [stepan\(at\)mm\(dot\)bme\(dot\)hu](mailto:stepan(at)mm(dot)bme(dot)hu)
 Home Page: <http://www.mm.bme.hu/~stepan/>
 Nationality: Hungarian

Degrees:

1982 PhD in Mechanical Engineering (degree no.: 9454/82)
 Hungarian Academy of Sciences (HAS)
 1978 MSc in Mechanical Engineering (degree no.: 194/1978)
 Technical University of Budapest

Qualifications:

2007 Full member of Hungarian Academy of Sciences
 2001 Corresponding member of Hungarian Academy of Sciences
 1995 Dr.habil. in Mechanical Engineering (degree no.: H-66/1995)
 Technical University of Budapest
 1994 DSc in Mechanical Engineering (degree no.: 3323/94)
 Hungarian Academy of Sciences

Languages:

English advanced level state exam no.: A'052809/1990 (lecturing)
 Russian intermediate PhD exam, 1982 (elementary speaking, reading)
 German elementary speaking, reading

Administrative functions:

2008-2012 Dean of the Faculty of Mechanical Engineering
 Budapest University of Technology and Economics
 1995-2018 Head of Department
 Department of Applied Mechanics
 Budapest University of Technology and Economics
 2017-2022 Leader of HAS-BME Research Group on
 'Dynamics of Machines and Vehicles'
 Hungarian Academy of Sciences

Positions and places of work:

2024- Professor Emeritus of Applied Mechanics, Budapest University of Technology
 and Economics (BME) (Part-time)
 2024- Research Professor, Research Group on Dynamics of Machines, Hungarian
 Research Network (HUN-REN) – BME (Part-time)
 1995-2023 Professor of Applied Mechanics, Budapest University of Technology and
 Economics (BME)
 1991-1995 Associate Professor, Department of Applied Mechanics, BME
 1989-1991 Senior Research Associate, Research Group on Mechanics
 Hungarian Academy of Sciences

| | |
|-----------|---|
| 1988-1989 | Research Fellow, University of Newcastle upon Tyne, UK |
| 1981-1987 | Research Associate, Research Group on Mechanics Hungarian Academy of Sciences |
| 1980-1981 | Design Engineer, Machine Tool Factory, Csepel Works |
| 1978-1980 | PhD student, Department of Applied Mechanics, Technical University Budapest |
| 1976-1978 | Research Assistant, Computer and Automation Research Institute Hungarian Academy of Sciences |
| 1975-1976 | Teaching Assistant, Department of Mathematics, Technical University of Budapest |
| 1974-1975 | Teaching Assistant, Department of Geometry, Technical University of Budapest |
| 1972-1973 | Military service with Hungarian Air Force (18 months) |

Research appointments abroad (time period):

| | |
|-----------|--|
| 2008 | Visiting Professor (1 month) Institut des Systemes Intelligents et Robotique Universite Pierre et Marie Curie - Paris 6, France |
| 1996 | Visiting Professor (1 month) British Scientific and Engineering Research Council Department of Engineering Mathematics, University of Bristol, UK |
| 1994-1995 | Visiting Associate and Lecturer (10 months) Fulbright scholarship Department of Mechanical Engineering California Institute of Technology, Pasadena, U.S.A. |
| 1993 | Visiting Researcher (1 month) Research Fund of Delft University of Technology Engineering Mechanics Laboratory Delft University of Technology, The Netherlands |
| 1992 | Visiting Researcher (1 month) Research Fund of Delft University of Technology Vehicle Research Laboratory Delft University of Technology, The Netherlands |
| 1991 | Visiting Researcher (4 months) Danish Scientific Research Fund Laboratory of Applied Mathematics and Physics Technical University of Denmark, Lyngby, Denmark |
| 1990 | Visiting Researcher (1 month) Italian Academy of Sciences Department of Mechanics Politecnico di Milano, Milan, Italy |
| 1988-1989 | Research Fellow (18 months) Science and Engineering Research Council & NEI Parsons Department of Mechanical Engineering University of Newcastle upon Tyne, UK |

Research areas:

Analytical mechanics: stability theory, nonlinear vibrations, equations of motion

Differential equations: bifurcation theory, delay-differential equations, chaos

Applications in mechanical engineering: nonlinear dynamics of wheels, vibration & stability issues of robots, force control, stabilization of unstable equilibria and motions, human and robotic balancing, rehabilitation robotics, machine tool vibrations, traffic dynamics

Major research achievements in the analysis and modelling of delayed dynamical systems:

Micro-chaos (small-scale chaotic oscillations in delayed digitally controlled systems);

Semi-discretization of delay systems (powerful numerical technique for time-periodic delay systems);

Act-and-wait control (stabilization of delayed systems with time-periodic feedback gains);

Delayed Mathieu-equation paradigm (stability of delayed oscillators subjected to parametric excitation);

Period doubling chatter, Flyover effect and Stability islands (all related directly to machine tool vibrations and manufacturing technology).

Phantom traffic jams (relation of drivers' reaction delay and levels of perturbations)

International Honours, Awards and Academy memberships (name of organization):

| | |
|------|---|
| 2023 | Foreign member of Chinese Academy of Sciences (CAS) |
| 2023 | Lyapunov Award (ASME Design Engineering Division) |
| 2021 | Delay Systems Lifetime Achievements Award (Int Fed of Automatic Control, IFAC) |
| 2020 | Fellow of International Academy for Production Engineering (CIRP) |
| 2019 | Jiangsu Friendship Award (Jiangsu Province, China) |
| 2018 | Foreign member of Estonian Academy of Sciences |
| 2017 | Fellow of Society for Industrial and Applied Mathematics (SIAM) |
| 2015 | Thomas K. Caughey Dynamics Award (ASME Applied Mechanics Division) |
| 2014 | Honorary Professor of Nanjing University of Aeronautics and Astronautics (NUAA) |
| 2013 | Member of Academia Europaea (The Academy of Europe) |
| 2012 | Associate member of International Academy for Production Engineering (CIRP) |
| 2007 | Simonyi Engineering Prize (Charles Simonyi Fund for the Arts and Sciences) |

International commissions of trust:

| | |
|-----------|--|
| 2021-2022 | Evaluation panel member (Sonata&Preludium BIS, National Science Centre, Poland) |
| 2019 | International review panel member (TU Eindhoven, The Netherlands) |
| 2018-2023 | Review panel member (Programa Galindo, Ministerio de Universidades, Spain) |
| 2017-2018 | Chairman of the ERC Starting Grant Panel PE8 (Technology) |
| 2011-2016 | Member of the ERC Starting Grant Panel PE8 (Technology) |
| 2010-2011 | Member, recruiting committee for professorship in nonlinear mechanics (ETH Zurich) |
| 2003 | Review committee member of Estonian Higher Education Accreditation Centre |

International societies and committees:

| | |
|-----------|---|
| 2019-2024 | Elected Member, EuroMech Council |
| 2012-2020 | Elected Member, Executive Committee of IUTAM Congress Committee |
| 2014-2015 | Member of Jürgen Moser Prize Committee, Society of Industrial and Applied Mathematics (SIAM) Dynamical Systems Activity Group |
| 2013- | Member, American Society of Mechanical Engineers (ASME) |
| 2012- | Member, representing Hungary, General Assembly of the International Union of Theoretical and Applied Mechanics (IUTAM) |
| 2014-2020 | Member, European Nonlinear Dynamics Conference Committee of EuroMech |
| 2010-2012 | Elected Member, Congress Committee of IUTAM |
| 2007-2014 | Member, Symposium Panel for Solid Mechanics, IUTAM |
| 2004-2009 | Member, European Solid Mechanics Conference Committee |
| 2004-2006 | Founder and first Chairman, Hungarian Biomechanics Society |
| 2001-2027 | Member, Scientific Council of International Centre for Mechanical Sciences, CISM, Udine, Italy |
| 2002-2006 | Chairman, Technical Committee on Nonlinear Oscillations of IFToMM |
| 1995-2003 | Elected Member, Executive Council of IFToMM, International Federation on Theory of Machines and Mechanisms |
| 1998-2001 | Chairman, Permanent Committee on Conferences of IFToMM |
| 1992- | Member, SIAM (Society of Industrial and Applied Mathematics, USA) |
| 1990- | Member, GaMM (Gesellschaft für angewandte Mathematik und Mechanik, Germany) |

National Honours and Awards (name of organization):

| | |
|-----------|--|
| 2024 | Lifetime Achievement Award (Faculty of Mechanical Engineering, BME) |
| 2023 | Bolyai Prize (Bolyai Foundation, biennial prize for single active Hungarian scientist) |
| 2023 | Anyos Jedlik Prize (for patent submissions, Hungarian Intellectual Property Office) |
| 2022,2018 | Excellent Lecturer Award (granted once in 3 years) |
| 2015,2012 | (Students' Union of Budapest University of Technology and Economics) |
| 2019 | Botka Imre Award (Hungarian Chamber of Engineers) |
| 2017 | Denes Gabor Award (Novofer Foundation) |
| 2016 | Prima Award (OTP Bank) |

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| 2015 | Albert Szentgyorgyi Award of Professors (Ministry of Human Resources) |
| 2013 | Best Lecturer of Budapest University of Technology and Econ. (Students' Union) |
| 2012 | Leo Szilard Prize (Hungarian Republic) |
| 2011 | Szechenyi Prize (Hungarian Republic) |
| 2008 | Muttnyanszky Prize (Faculty of Mechanical Engineering, BME) |
| 2012 and 2005-2009 | Most Popular Lecturer Award of mechanical engineering students (in 6 different years) |
| 2003 | Pro Scientia student supervisor award (Ministry of Education) |
| 2002 | Pro Doctorandis award (National Organisation of PhD Students) |
| 2001 | Pro Progressio award for supervising students' research |
| 2001 | Professional Teacher award (Ministry of Education) |
| 1997-2000 | Szechenyi Professors' Scholarship (Ministry of Education and Culture) |
| 2004,1998 '93,'91,'88 | Rector's award for supervising students' research (BME) (in 5 different years) |
| 1987 | Research Award (Hungarian Academy of Sciences) |
| 1986 | Honorary Associate Professorship of BME |
| 1978 | Rényi Kató Award of Bolyai Society |
| 1977 | 3rd prize at International Engineering Mathematics Competition (Russe, Bulgaria) |
| 1975-1978 | Distinguished scholarship of the Hungarian People's Republic |
| 1972 | 15th in ranking at the National Mathematics Competition for High School Students |

National societies and committees:

| | |
|-----------|---|
| 2016-2020 | Chairman, Scientific Council Budapest University of Technology and Economics (BME) |
| 2011-2017 | Chairman, Section of Engineering Sciences of the Hungarian Academy of Sciences |
| 2010-2022 | Chairman, Doctoral and Habilitation Committee, Mechanical Engineering (BME) |
| 2010- | Member, advisory board of Rosztoczy Foundation |
| 2006- | Elected member of the Hungarian Academy of Engineering |
| 2005-2011 | Vice Chairman, Section of Engineering Sciences of the Hungarian Academy of Sciences |
| 2001-2007 | Member, Doctoral Committee Hungarian Academy of Sciences |
| 2000-2005 | Chairman, Machine Structures Committee of the Hungarian Academy of Sciences |
| 1998-2001 | Member, Mechanical Engineering Subcommittee of the Hungarian Scientific Research Fund |
| 1998-2000 | Member, Natural Sciences Committee of the Hungarian Scientific Research Fund |
| 1997-2000 | Member, Engineering I Committee, of the Higher Education Research Program (FKFP) |
| 1993-2005 | Member, Machine Structures Committee of the Hungarian Academy of Sciences |
| 1993-2000 | Member, Scientific Qualification Subcommittee of Mechanical Engineering, Doctoral Council of the Hungarian Academy of Sciences |
| 1992-2002 | Member, National Committees of IFToMM and GaMM |
| 1992-1993 | Participant, Tempus project committee, Technical University of Budapest |
| 1991-2011 | Secretary, Hungarian National Committee of IUTAM (International Union of Theoretical and Applied Mechanics) |
| 1985-2014 | Member, Committee on Theoretical and Applied Mechanics, Hungarian Academy of Sciences |
| 1986- | Member, Bolyai Mathematics Society |
| 1983-1988 | Member, Vibration and Noise Committee of Association on Mechanical Engineering Science (GTE) |

Committees and councils at Budapest University of Technology and Economics (BME):

| | |
|-----------|---|
| 2015-2020 | Chairman, Scientific Council of BME |
| 2010-2019 | Chairman and |
| 1997- | Member, 'Pattantyús' Habilitation and Doctoral Committee for Mechanical Engineering, BME |

- 1997-2012 Elected Member, Senate, BME
 1997-2006 Chairman, Scientific Committee, BME
 1996-2007 Member, Educational Committee of Mechanical Engineering, BME
 1991-1995 Elected Member, Faculty Council of Mechanical Engineering, BME
 1991-1994 Member, Educational Committee and Scientific Committees of Mechanical Engineering, BME
 1991-1993 Minute Taker, Faculty Council of Mechanical Engineering, BME

Research projects (total cca. 6,800,000 Euro):

International: (PI, co-PI)

- 2020-2021 ERC-2019-PoC/862308 'ProExcer' (European Research Council, Proof of Concept Grant)
 Projectile exciter for noiseless environment
 150,000 Euro
- 2018-2019 TET-CN-2018-00008 'Biomechanics of Balancing in Aging Societies' (Chinese-Hungarian bilateral project) co-PI: Prof Zaihua Wang
 Key Laboratory of Control and Vibrations,
 Nanjing University of Aeronautics and Astronautics, China
 16,500 Euro
- 2014-2019 ERC-2013-AdG/340889 'SIREN' (European Research Council, Advanced Grant)
 Stability Islands: Performance Revolution in Machining
 2,573,000 Euro
- 2016-2018 H2020-MSCA/704133-PIEZOMACH 'Piezoelectric Vibration Absorber for Machining Applications' Marie Skłodowska-Curie Individual Fellowship for Dr Giuseppe Habib
 146,239 Euro
- 2016-2017 MCMS-0116K01 'Constant and Periodic Delays in Control of Mechanical Systems'
 Research Fund of the State Key Laboratory of Mechanics and Control of Mechanical Structures (Nanjing University of Aeronautics and Astronautics)
 20,000 Euro
- 2013-2015 TET_12_CN_1-2012-0012 'Control of Unstable Elastic Structures' (Chinese-Hungarian bilateral project) co-PI: Prof Zaihua Wang
 Key Laboratory of Control and Vibrations,
 Nanjing University of Aeronautics and Astronautics, China
 25,300 Euro
- 2011-2013 FP7-NMP-ICT-Fof-260073 'Dynxperts' (EU FP7 leader of Hungarian group, project leader: JP Bilbatua, IDEKO Spain
 partners: FIDIA Italy, CNRS Nice France, RWTH-Aachen Germany)
 245,000 Euro
- 2010-2012 TET_08_SG_STAR 'COSMOSYS' (Hungarian-Singaporean project)
 Cognitive Stroke Movement Therapy Systems through Integration of Wearable Haptic Interfaces, co-PI with Prof I-Ming Nanyang University
 169,000 Euro
- 2008-2012 EU-US-2008-1767/001-001 CPT USMOBI (Atlantis, Excellence in Higher Education Exchange, co-PI with Prof Enikov, Arizona,
 partners: University of Arizona, University of New Mexico, Technical University of Bratislava)
 180,000 Euro
- 2007-2009 FP6-IST-2006-045530 'Autonomous Collaborative Robots to Swing and Work in Everyday Environment - ACROBOTER' (EU FP6 Principal Investigator, partners: Department of Production Technology BME, Lund University, Fraunhofer IPK Germany, Democritus University of Thrace Greece, ROBOSOFT SA France, University of Reading England, ROBOTNIC Spain)
 2,313,000 Euro
- 2007-2008 SPA 05/2006 'Dynamic investigation of high-speed milling processes' with Tekniker Foundation
 (Spanish-Hungarian Joint Fund for Research in Technology)
 20,000 Euro
- 2004-2006 CAN 01/2003 'Control of Mechanical Systems'

- with Department of Mechanical Engineering, McGill University
(Canadian-Hungarian Joint Fund for Research in Technology)
28,000 Euro
- 2003-2012 EU Erasmus student exchange program with University of Karlsruhe
- 2001-2002 SLO 20/2000 'Nonlinear and Stochastic Dynamics of Cutting Processes'
with Laboratory of Technical Physics, University of Ljubljana
(Slovenian-Hungarian Joint Fund for Research in Technology)
15,000 Euro
- 2000-2003 EU 5 IST-1999-13109 'Supporting Rehabilitation of Disabled
Using Industrial Robots for Upper Limb Motion Therapy'
(EU FP5, REHAROB project
project leader: Prof. G. Arz, Department of Production Technology BME,
partners: University of Wales at Cardiff, University of Rousee,
Zebris Medizintechnik GmbH, Hungarian Medical Rehabilitation Institute)
450,000 Euro
- 2000-2017 EU Erasmus student exchange program with Bristol University
1999 'PhD student exchange program'
with Department of Mechanical Engineering, Michigan State University
(TeT US-Hungarian Joint Fund for Technology)
- 1998-2001 COST P4 Action Group on 'Nonlinear dynamics in mechanical processing'
PI of Working Group 2
(European Commission COST Action, Chairman: I. Grabec, Slovenia)
- 1997-1999 GR 22/96 'Design Methods of Vehicle Suspension Systems'
with Mechanical Engineering Department, Aristotle University of Thessaloniki
(TeT Hungarian-Greek Joint Fund for Technology)
- 1997-1999 PH 2.04-194 Seismic Assessment and Qualification in NPP
(subtask in the PHARE project led by
Westinghouse Energy Systems Europe)
- 1994-1997 MAK A J.F.No.336 'Machine Dynamics and Control'
with Department of Mechanical Engineering, Auburn University
(TeT US-Hungarian Joint Fund for Technology)
- National:** (principal investigator or leader of the research group)
- 2020-2025 'Simulation and Emulation Framework for Vibration Attenuation of Milling
Machines' (NKFIH grant no KKP133846)
950,000 Euro
- 2017-2022 'Dynamics of Vehicles and Machines' (MTA-BME grant no TKI04113)
400,000 Euro
- 2012-2016 'Safety improvements in transportation' (MTA-BME grant no 2011TKI395)
420,000 Euro
- 2012-2015 Contact parameter identification of machines based on nonlinear dynamical
experiments (OTKA K101714)
56,000 Euro
- 2007-2011 Vibration reduction of machines via constraining forces (OTKA K68910)
40,000 Euro
- 2005-2011 V2.3.3-1 'Development of Units for New Nuclear Energy Technologies'
(NKTH NAP project led by Dr. Sandor Zoletnik KFKI-RMKI,
partners: KFKI-AEKI, Institute of nuclear Techniques BME, FZK Karlsruhe,
linked to the EU ITER fusion reactor project)
317,000 Euro
- 2003-2006 Stability and nonlinear vibrations of coupled discrete and continuous
dynamical systems (OTKA T043368)
37,000 Euro
- 2001 Development of multichannel dynamic measurement system
(Infrastructure Program of Hungarian Scientific Research Fund)
- 1999-2003 OTKA T030762 Dynamic contact problems
(Hungarian Scientific Research Fund)
- 1998-1999 PFP 2702/98 Computer aided vibration measurement
(Ministry of Education and Culture)
- 1998 Multichannel dynamic measurement system

- (Infrastructure Program of Hungarian Scientific Research Fund)
- 1997-2000 FKFP 0380/97 Nonlinear vibration theory for machine design
(Ministry of Education and Culture)
- 1997 PFP 3390/97 Computer aided measurement laboratory
(Ministry of Education and Culture)
- 1995-1998 OTKA T017622 Nonlinear vibrations of machines
(Hungarian Scientific Research Fund)
- 1995-1996 FEFA Nonlinear dynamics educational network
(joint project with the Institute of Physics)
- 1991-1995 OTKA 732 (5-328) Dynamics of computer controlled machines
(Hungarian Scientific Research Fund)
- 1988-1991 OTKA 1114 (5-207) Nonlinear dynamic systems
(Hungarian Scientific Research Fund)

Industrial: (principal investigator, selected list)

- 2011 Vibration elimination of strollers (undisclosed EU company)
- 2009 Checking the flywheel of main pump (Paks Nuclear Power Station)
- 2004 Vibration analysis of servo steering (Knorr-Bremse)
- 2004 Wind induced oscillations of plates (BME Dept. of Fluid Mechanics)
- 2003 Force sensor calibration for car steering bar (Thyssen Krupp Prod. Systems)
- 2002 Free and forced vibrations of heat exchanger piping (IFT Hungary)
- 2001-2003 Dynamics of brake systems (Knorr-Bremse)
- 2000 Vibration analysis of the windscreen wiper motor (Bakony Works)
- 2000 Vibration measurements at 2 MW turbogenerator (Dorog Power Station)
- 2000 Vibration analysis of the switchboard room (WESTEL)
- 1999 Dynamics of punching bags (Intersoft)
- 1998 Vibration analysis of the switchboard room (Pannon GSM)
- 1997 Dynamic analysis of 400 kJ hammer fracture (RÁBA)
- 1993 Vibration analysis of 215 MW Láng-BBC turbogenerators
(Százhalombatta Power Station)
- 1986 Vibration measurements in coal sorters (Tatabánya Coal Mines)
- 1982 Regenerative vibrations of CriDan machine tool (Csepel Works)
- 1981-1987 Joint consultancy projects with Departments of Production Technology,
Fluid Mechanics, and Textile Technology
- 1981 Checking of 28 mm built-in cable end (Crane Rental Company)

Professional services:**Journals:**

- 2019-2023 Panel member, Int J of Machine Tools and Manufacture (Elsevier)
- 2014- Associate Editor, Nonlinear Dynamics (Springer)
- 2013-2018 Associate Editor, ASME Journal Nonlinear and Computational Dynamics
- 2007-2019 Member, Editorial Board, Physica D
- 2006- Associate Editor, Mechanism and Machine Theory
- 2005-2010 Member, Editorial Board, Philosophical Transactions of the Royal Society
A: Mathematics, Physical and Engineering Sciences
- 1998-2012 Member, Editorial Board, Meccanica
- 1995-2017 Member, Editorial Board, Journal of Nonlinear Science
- 1994-2014 Member, Editorial Board, Journal of Vibration and Control
- 1993-1994 Chief Editor, Periodica Polytechnica
- 1992- Member, Editorial Board in Mechanical Engineering, Periodica Polytechnica

Editorship in journal Theme issues and Special issues:

- 2014 Thematic Issue on *Time-delay Systems in Engineering I-II* (11+10 articles)
Guest Editors: Tamas Insperger and Gabor Stepan
International Journal of Dynamics and Control (Springer)
Volume 2, Issues 1 and 2, March and June 2014
- 2010 Theme Issue on *Traffic jams: dynamics and control* (10 articles)
Editors: Gabor Orosz, R. Eddie Wilson and Gabor Stepan
Philosophical Transactions of the Royal Society – A **368** (1928) October 2010
- 2010 Special Issue on *Time Delay Systems* (15 articles)
Edited by: Tamás Kalmar-Nagy, Nejat Olgac and Gabor Stepan
Journal of Vibration and Control Vol. **16** (7-8) June/July 2010

- 2009 Theme Issue on *Delay effects in brain dynamics* (11 articles)
 Editor: Gabor Stepan
 Philosophical Transactions of the Royal Society – A **367** (1891) March 2009
- 2009 Special Issue *In Memoriam Miklos Farkas* (15 articles)
 Editor: Jocirei Dias Ferreira and Gabor Stepan
 Differential Equations and Dynamical Systems Vol. **17** (1,2) January & April 2009

International conferences:

- 2020-2021 Chairman of the 10th ECCOMAS Multibody Dynamics Conference (Budapest, December 12-15, 2021)
- 2016-2018 Chairman of the 14th IFAC Workshop on Time Delay Systems (TDS) (Budapest, June 28-30, 2018)
- 2016-2018 Chairman of the 8th CIRP Workshop on High Performance Cutting (HPC) (Budapest, June 25-27, 2018)
- 2015-2017 Chairman of the 9th European Nonlinear Dynamics Conference (ENOC) (Budapest, June 25-30, 2017)
- 2014-2015 Organiser of the Featured Mini-Symposium MS10 “Dynamics modeling with transformations between partial- and delay differential equations”
 2015 SIAM Conference on Dynamical Systems (Snowbird, Utah)
- 2012-2013 Organiser of the Featured Mini-Symposium MS98 “Delayed Oscillators”
 2013 SIAM Conference on Dynamical Systems (Snowbird, Utah)
- 2011-2012 Organiser of the Pre-Nominated Session on Mechanics of Material Processing at the 23rd International Congress of Theoretical and Applied Mechanics (Beijing, China, August 19-24, 2012) (FSM9)
- 2009-2010 Organiser of the Mini-Symposium MS56 “Dynamics of Networks with Time Delay” (co-organiser: Gabor Orosz)
 2009 SIAM Conference on Dynamical Systems (Snowbird, Utah)
- 2009-2010 Chairman of IUTAM Symposium on Dynamics Modeling and Interaction Control in Virtual and Real Environments (Budapest, June 07-11, 2010)
- 2008-2009 Proposer and organiser of the BIRS Workshop on Noise, time delays and balance control (Banff, Canada, Nov 08-13, 2009)
- 2007-2008 Organiser of the Pre-Nominated Session on Mechanics of Material Processing at the 22nd International Congress of Theoretical and Applied Mechanics (Adelaide, Australia, August 24-30, 2008) (FSM6)
- 2004-2006 Chairman of the European Solid Mechanics Conference (ESMC) (Budapest, Aug 28 – Sept 01, 2006)
- 2003-2005 Member of the International Scientific Committee
 IUTAM Symposium on Vibration Control of Nonlinear Mechanisms and Structures (Munich, 2005)
- 2003-2004 Member of the International Program Committee
 37th CIRP International Seminar on Manufacturing Systems (Budapest, 2004)
- 2002-2003 Chairman of the Ninth Hungarian Conference on Mechanics IX. MAMEK (Miskolc, 2003)
- 2002-2003 Member of the International Scientific Committee
 IUTAM Symposium on Chaotic Dynamics and Control of Systems and Processes in Mechanics (Roma, 2003)
- 2001-2002 Member of the International Advisory Committee
 5th International Conference on Vibration Engineering (Nanjing, China, 2002)
- 2001 International Representative of the Advisory Board
 ASME International Design Engineering Technical Conferences (Pittsburgh, 2001)
- 2000-2001 Co-organiser of the Symposium on Nonlinear Dynamics and Control of Engineering Systems at the 18th Biennial Conference on Mechanical Vibration and Noise (Pittsburgh, 2001)
- 2001 Chairman of the COST P4 Workshop on Dynamics and Control of Material Processing (Budapest, 2001), Co-Editor of the Proceedings
- 2000-2001 Chairman of the 3rd Finno-Ugric Days of Mechanics (Ráckeve, 2001)

- 2000-2001 Chairman of the National Student Research Conference on Technology (Budapest, 2001)
- 2000 Member of the International Program Committee
2nd International Symposium on Impact and Friction of Solids, Structures and Intelligent Machines (Montreal, 2000)
- 2000 Member of the Scientific Committee of the Eighth International Conference on Theory of Machines and Mechanisms (Liberec, 2000)
- 1998-1999 International Representative of the Advisory Board
ASME International Design Engineering Technical Conferences (Las Vegas, 1999)
- 1999 Chairman of the COST P4 Workshop on Dynamics and Control of Material Processing (Budapest, 1999), Co-Editor of the Proceedings
- 1998-1999 Chairman of the Eighth Hungarian Conference on Mechanics VIII. MAMEK (Miskolc, 1999)
- 1997-1998 Co-Chairman of the 2nd Finno-Ugric Days of Mechanics (Ráckeve, 1998)
- 1997-1998 Member of the Organizing Committee
Numerical Methods and Computational Mechanics (Miskolc, 1998)
- 1995-1997 Member of the Scientific Committee
IUTAM Symposium on Nonlinear and Chaotic Dynamics (Ithaca NY, 1997)
- 1995-1997 Member of the Scientific Committee
IAVSD Symposium on Dynamics of Vehicles (Budapest, 1997)
- 1986-1987 Member of the Organizing Committee,
XI. International Conference on Nonlinear Oscillations (Budapest, 1987), Co-Editor of the Proceedings

Teaching and tutoring:

Supervised PhD students and reviewed theses:

- 1989- Supervisor of 26 PhD students
16 students received PhD at Budapest University of Technology
7 students transferred to US universities and received PhD at CalTech, Cornell, Chicago, Auburn
- 1983- Reviewer of 34 PhD/DSc/Dr.habil thesis works, also for 7 foreign universities:
Royal Institute of Technology, Stockholm (KTH)
University of Bristol, Bristol (UoB)
Eindhoven University of Technology, Eindhoven (EUT)
University of British Columbia, Vancouver (UBC)
Karlsruhe Institute of Technology, Karlsruhe (KIT)
Université Paris Sud, Paris (PS)
University of Stuttgart, Stuttgart (USt)

Successful PhD students:

- George Haller started PhD with G Stepan in 1989, transferred to Pasadena in 1991 and received PhD in 1994 at CalTech; 2005-2008: full professor in Mech Eng MIT, 2007-2009: Director of Morgan Stanley Analysis; 2009-2011 Head of Mech Eng at McGill, 2012- full professor at ETH Zurich
- Eniko Enikov started PhD with G Stepan in 1993, transferred to Univ of Illinois at Chicago in 1995, received PhD in 1998 there; 2004- associate professor, 2012- full professor in Mech Eng Univ of Arizona
- Zsolt Szabo received PhD in 2002 at Budapest University of Technologies and Economics (BME) under supervision of G Stepan, associate professor since 2007.
- Tamas Kalmar-Nagy started PhD with G Stepan in 1995, transferred to Cornell (NY) in 1996, received PhD in 2001 there; 2002-2005 researcher at United Technologies; 2006-2011 assist prof Aerospace Eng Texas A&M, 2012- Mitsubishi Electric Research, 2016- assoc prof at BME
- Peter Frank Part-time student, quit PhD with Absolutorium in 1999, section director of Knorr-Bremse Railway Development Hungary 2008-14, director of Knorr-Bremse R&D Hungary 2015-, Denes Gabor Prize 2016
- Laszlo Kollar received PhD in 2002 at BME under supervision of Gabor Stepan; 2002-2003: postdoc at Dept Math Univ of Texas at Dallas, 2004- researcher at Mech Eng Univ of Quebec; 2012- research fellow at University of Huddersfield; 2015- assoc prof at ELTE; 2016 Dr.habil

- T Inesperger received PhD in 2002 at BME under supervision of G Stepan, associate prof since 2008 at BME; 2016 DSc at HAS; 2018- full professor at BME; 2019- member of MTA
- G Csernak received PhD in 2003 at BME under supervision of G Stepan, associate prof since 2009 at BME
- Gabor Orosz received MSc in 2002 at BME under supervision of Gabor Stepan; after many joint publications with Stepan he received PhD in 2006 at Eng Math Univ Bristol; 2005-2010: postdoc at Univ. Exeter then UCSB; 2010- tenure track, 2017- tenured associate professor in Mech Eng Univ Michigan (Ann Arbor)
- L Kovacs received PhD in 2007 at BME under supervision of G Stepan; supported by EU FP5 project RehaRob in 2001-2004; 2010- research associate at Mech Eng McGill University (Montreal); 2018- developer at Quanser (Montreal)
- Robert Szalai received PhD in 2006 at BME under the supervision of Gabor Stepan; 2004-2005: Fulbright Scholar at Mech Eng MIT; 2007-2010 postdoc, 2010- lecturer at Eng Math Univ Bristol
- Denes Takacs received PhD in 2011; 2009- research assoc at MTA; Junior Prima Prize 2012; 2018- assoc prof at BME
- Zoltan Dombovari received PhD in 2012, supported by EU FP6 project Acroboter in 2007; visiting researcher at Mech Eng in Vancouver in 2008, at Ideko Ltd in Elgoibar in 2009 and 2014-15; assoc prof at BME 2019-
- Daniel Bachrathy received PhD in 2013; supported by EU FP6 project Acroboter in 2007; 2009- assist prof at BME
- Ambrus Zelei received PhD in 2015; supported by EU FP6 project Acroboter in 2007-2009; assist researcher at MTA 2015-
- Balint Magyar received PhD in 2015; supported by EU FP6 project Acroboter in 2009 and by COSMOSYS project in 2011-12; 2015- assist prof at BME 2015-
- Giuseppe Habib received PhD in 2014, co-supervised by Prof Rega, double degree PhD program of BME and Univ of Rome; postdoc at Aerospace & Mech Eng Univ Liege (Belgium); 2014-16, Marie-Curie research fellow at BME 2016-2018
- Marta Reith received PhD in 2016, supported by EU FP7 project Dynxperts in 2011-12 and by ERC Adv Grant SIREN 2014-16; 2017-19 assist prof at BME
- Mate Antali received PhD in 2017, supported by ERC Adv Grant SIREN 2014-17; assist prof at BME 2017-18; distinguished postdoctoral scholarship of MTA 2018-22

Courses PhD level (international):

- 2019 Dynamics of Machining: Prediction and Suppression of Undesired Vibrations, course organizer of 30 lectures, presenter of 6 lectures at Int. Centre for Mechanical Sciences (CISM, Udine, Italy)
- 2018 Time-dependent and nonholonomic systems, 30 lectures at Nanjing University of Aeronautics and Astronautics (Nanjing, China)
- 2016 Nonlinear Vibrations, 30 lectures at Nanjing University of Aeronautics and Astronautics (Nanjing, China)
- 2014 Dynamics of Computer Controlled Machines, 30 lectures at Nanjing University of Aeronautics and Astronautics (Nanjing, China)
- 2011 Delay Equations with Engineering Applications, 5 lectures at Int. Winter School on Recent Trends in Nonlinear Science (Barcelona, Spain)
- 2009 Oscillations in time-delay systems and applications, 5 lectures at International Summer School in Automatic Control (Grenoble, France)
- 2006 How Delay Equations Arise in Engineering? 5 lectures at Summer School on Delay Differential Equations & Applications (Dobbiaco, Italy)
- 2006 Delay induced vibrations in engineering, 5 lectures at University of Udine (Italy)
- 2004 Theory and Applications of Delay-Differential Equations in Modeling Turning, Drilling and Milling, 6 lectures at Nonlinear Dynamics and Chaos for High-Volume Ultra-Precision Metal Cutting D'Alembert Session, Int. Centre for Mechanical Sciences (CISM, Udine, Italy)
- 1994 Equations of Motion of Non-Holonomic Systems, 6 lectures at PhD Seminar Series on Locomotion (California Institute of Technology)
- 1992- Dynamics of Mechanical Systems (elective for PhD students in Mechanical, Civil and Transportation Engineering at BME)

BSc/MSc level:

- 2010- Lecturer of the course Nonlinear Vibrations (in English)

| | |
|-----------|---|
| | (prerequisite in Mechanical Engineering Modelling, MSc) also given at Nanjing University of Aeronautics and Astronautics in 2016 |
| 2009-2020 | Lecturer of the new course Engineering Mechanics (in English) (prerequisite in Mechanical Engineering Modelling, MSc) |
| 2001-2008 | Lecturer of the new course Dynamics of Machines (in English, prerequisite in Integrated Engineering) |
| 1997-2010 | Lecturer of the new course Machine Tool Vibrations (elective in Production Technology) |
| 1996-2022 | Lecturer of Dynamics (prerequisite in Mechanical Engineering, BSc) |
| 1995-2023 | Lecturer of Vibrations (prerequisite in Mechanical Engineering, BSc) |
| 1995 | Lecturer of Lagrangian Dynamics (CDS240c, Division of Engineering and Applied Sciences, California Institute of Technology) |
| 1993- | Lecturer of the new course Dynamics of Computer Controlled Machines (elective in Machine Design, prerequisite in Mechanical Development) also given at Nanjing University of Aeronautics and Astronautics in 2014 |
| 1993-2010 | Lecturer of Nonlinear Vibrations (elective in Engineering Physics, in Mathematical Engineering, prerequisite in Applied Mechanics) |
| 1985-2018 | Lecturer of Dynamics of Machines (elective in Machine Design, prerequisite in Applied Mechanics, BSc) |
| 2008-2015 | Lecturer of the graduate course Dynamics of Mechanical Systems |
| 1990-1996 | Lecturer of the new MSc course Advanced Applied Mechanics in English |
| 1985-2015 | Lecturer of Analytical Mechanics I,II (prerequisite in Mathematical engineering, elective in Applied mechanics) |
| 1984-1987 | Lecturer of the first BSc courses Mechanics I-IV in English at BME |
| 1983-1984 | Participant and teacher of the new curriculum in Computer Science |
| 1978-1990 | Practice, laboratory work in all the subjects of Mechanics |
| 1985-2024 | Supervisor of 71 BSc/MSc thesis projects |

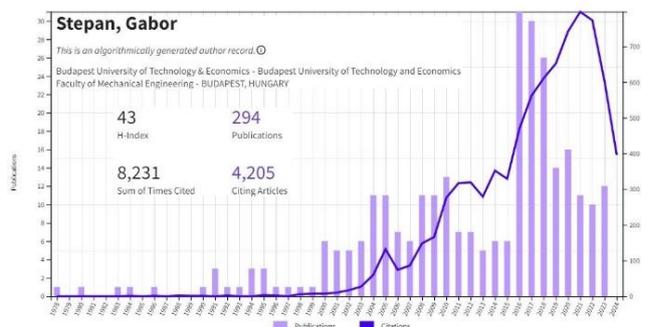
Publications

| | |
|-----|---|
| 2 | Book (Longman/Wiley, Springer) |
| 6 | Proceedings editor |
| 5 | Theme issue editor |
| 22 | Book chapter |
| 294 | Paper in Web of Science Core Collection |
| 9 | Patent co-author |

Publication list

| | |
|---------------|---|
| Researcher-ID | www.researcherid.com/rid/B-4224-2011 |
| SCOPUS | Author ID: 7004247589 |
| GoogleScholar | user=pl6Pni8AAAAJ |
| Publons | publons.com/researcher/2810310/gabor-stepan/ |
| ORCID | 0000-0003-0309-2409 |
| MTMT | m2.mtmt.hu/gui2/?type=authors&mode=browse&sel=1000019&view=pubTable |

Scientometrics



Keynote/plenary lectures:

| | |
|------|---|
| 2024 | plenary lecture, 9 th Academic Conference of the Academic Divisions, Chinese Academy of Sciences (CAS, Beijing, China) |
| 2023 | |

- 2023 keynote lecture, 17th International Conference on High-Speed Machining (Nanjing, China)
Lyapunov prize lecture (ASME IDETC, Boston)
- 2022 von Karman lecture, 19th U.S. National Congress of Theoretical and Applied Mechanics (Austin, TX)
- 2019 keynote lecture, 15th International Conference on High-Speed Machining (CIRP, Prague)
- 2019 plenary lecture, Multibody Dynamics Conference (ECCOMAS, Duisburg)
- 2018 opening lecture, 5th International Conference on Dynamics, Vibration and Control (ICDVC, Shijiazhuang)
- 2018 plenary lecture, The 20th European Conference on Mathematics for Industry (ECMI, Budapest)
- 2016 opening lecture, 7th Int Conf on High Speed Machining (ICHSM, Xian)
- 2016 keynote lecture, Conference on Open Problems in Nonsmooth Dynamics (Centre de Recerca Matemàtica, Barcelona)
- 2015 Caughey prize lecture, International Mechanical Engineering Congress & Exposition (ASME IMECE, Houston)
- 2014 plenary lecture, 4th International Conference on Dynamics, Vibration and Control (ICDVC, Shanghai)
- 2013 opening lecture, 11th Biennial Int Conf on Vibration Problems (ICOVP, Lisbon)
- 2013 plenary lecture, Conference on Applied Dynamical Systems (SIAM, Snowbird)
- 2009 closing lecture, 19th Biennial Congress of the Italian Association of Theoretical and Applied Mechanics (AIMETA, Ancona)
- 2006 plenary lecture, 5th Nonlinear Dynamics Conference (EUROMECH, Eindhoven)

Granted patents:

- 2021 NSZO 21713/21 Optical gate and method for determining the velocity vector of a spherical projectile (granted in Hungary, submitted PCT/HU2022/050053)
Wohlfart R, Magyar B, Miklos A, Takacs D, Stepan G
- 2016 NSZO G01N 27/00 Contact characterization of solid bodies (in Hungarian)
Wohlfart R, Magyar B, Stepan G, Csernak G, Tóth A, Jurak M, Henap G
- 2011 WO2011/012916 Payload suspension system
Stepan G, Kovacs LL, Wohlfart R, Jurak M, Bachrathy D, Toth A
- 2011 WO2011/012915 Suspended payload platform thrusted by fluid mass flow
Stepan G, Kovacs LL, Wohlfart R, Jurak M, Bachrathy D, Toth A

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