Yuri Vladimirovich MIKHLIN, Professor

CURRICULUM VITAE

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EDUCATIONAL BACKGROUND:

1988 Doctor of Science (Physics & Mathematics), Moscow Institute for Problems in Mechanics (Russian Academy of Sciences).

1974 Ph.D. (Physics & Mathematics), Dnepropetrovsk State University.

1970 Graduated from the Dneptopetrovsk State University summa cum laude in Mechanics.

INDUSTRIAL AND FACULTY APPOINTMENTS:

1995 - at present: National Technical University "Kharkov Polytechnic Institute" (Professor).

1989-1995 Dnepropetrovsk State University (Professor).

1976-1989 Dnepropetrovsk Civil Engineering Institute (Docent in Mathematics, Researcher in Mechanics).

1970-1976 Dnepropetrovsk Automation in Metallurgy Institute (Researcher in Mechanics and Control).

QUALIFICATION and AREA OF EXPERTISE:

More than 45 years of experience in Nonlinear Dynamics and Applied Mathematics.

The main scientific results in: Theory of nonlinear normal vibration modes; Analysis of the nonlinear vibrations stability; Theory of perturbation; Applications of the nonlinear dynamics.

Current research focuses on: Nonlinear normal mode theory, Nonlinear rotor dynamics; Nonlinear dynamics of elastic systems, Vibro-absorption problems; Transient and localization problems et al.

INTERNATIONAL SCIENTIFIC ACTIVITY:

Organizer and Chair of the Mini-Symposium on Nonlinear Dynamics in Engineering Systems at the European Nonlinear Oscillations Conference, June 25-30, 2017, Budapest, Hungary

Organizer and Chair of the Mini-Symposium on Nonlinear Dynamics of Structures and Machines at the European Nonlinear Oscillations Conference, July 6-11, 2014, Vienna, Austria

Organizer and Chair of the Mini-Symposium on Nonlinear Dynamics of Structures and Machines at the European Nonlinear Oscillations Conference, July 24-29, 2011, Rome, Italy

Organizer and Chairman of the Sci. Committee of the Fifth International Conference on Nonlinear Dynamics which will be held at the National Technical University "Kharkov Polytechnic Institute", Kharkov, September, 27-30, 2016.

Organizer and Chairman of the Sci. Committee of the Fourth International Conference on Nonlinear Dynamics which will be held in Sevastopol, June, 19-22, 2013.

Organizer and Chairman of the Sci. Committee of the Third International Conference on Nonlinear Dynamics which will be held at the National Technical University "Kharkov Polytechnic Institute", Kharkov, September, 21-24, 2010.

Organizer and Chairman of the Sci. Committee of the Second International Conference on Nonlinear Dynamics at the National Technical University "Kharkov Polytechnic Institute", Kharkov, September, 25-28, 2007.

Organizer and Chairman of the Sci. Committee of the International Conference on Nonlinear Dynamics at the National Technical University "Kharkov Polytechnic Institute", Kharkov, September, 14-16, 2004.

Memberships in Editorial Board of the journals: Nonlinear Dynamics, Mathematical Problems in Engineering and Journal of Mechanical Engineering Science.

Memberships in Scientific Committees of Int. Conferences in Belgium, France, Greece, Italy, Poland, Ukraine, UK et al.

Memberships in AMS, GAMM.

Visits to: Technion (Haifa), Israel, 2014, Lublin Technical University, Poland, 2013, University UNESP, Rio-Claro-San-Paulo, Brasil, 2012, Glasgow University, UK, 2008; Aberdeen University, UK, 2008; Michigan University, Ann Arbor, USA, 2005; ENTPE, Lion, France, 2003; Modena University, Italy, 2001; Technical University, Vienna, Austria, 2000 et al.

SUPPORTING AGENCIES: Grants by Ukrainian Academy of Science and the Russian Academy of Science (2009-2013); NATO Scientific Affairs Division (2001-2003), USA Air

Force Office of Scientific Research (2001-2003); Grants from the Ministry of Science and Education of Ukraine (1997-at present).

PUBLICATIONS: - Number of papers in refereed journals: 125
- Number of communications to scientific meetings: 125
- Number of books: 7

SOME SELECTED PUBLICATIONS:

Normal Modes and Localization in Nonlinear Systems. NY: Wiley, 1996, 552 p. (A.F.Vakakis, L.I.Manevich, Yu.V.Mikhlin, V.N. Pilipchuk, A.A.Zevin), ISBN 0-471-13319-1.

The Method of Normal Oscillations for Essentially Nonlinear systems. Moscow: Nauka, 1989, 216 p. (in Russian; L.I.Manevich, Yu.V.Mikhlin, V.N.Pilipchuk), ISBN 5-02-014011-2.

. Nonlinear Dynamics of Elastic Systems. V.1. Models, Methods, Phenomena. Moscow-Izhevsk: ICI, (Second Edition) 2015, 716 p. (in Russian)., ISBN 978-5-4344-0299-6.

. Nonlinear Dynamics of Elastic Systems. V.2. Applications. Moscow-Izhevsk: ICI, 2015, 700 p. (in Russian), ISBN 978-5-4344-0301-6.

Yu.V Mikhlin, M.P Cartmell and J. Warminski. Special Issue on Nonlinear Dynamics. Proc. of the Institution of Mechanical Engineers, J. of Mechanical Engineering Science. Vol. 230(1) 2016.

K.Y. Plaksiy, Yu.V. Mikhlin. Resonance behavior of the limited power-supply system coupled with the nonlinear absorber, Mathematics in Engineering, Science and Aerospace, Vol. 6 (3), 2015, 475-495.

Review of Applications of Nonlinear Normal Modes for Vibrating Mechanical Systems. Applied Mechanics Review, 65(2), 2013 (20 pages).

N.V. Perepelkin, Yu.V. Mikhlin, C. Pierre. Non-linear normal forced vibration modes in systems with internal resonance. Int. J. of Non-Linear Mechanics, Vol. 57, Dec. 2013, 102–115

A.A. Klimenko, Y.V. Mikhlin, J. Awrejcewicz. Nonlinear normal modes in pendulum systems. Nonlinear Dynamics, Vol. 70 (1), 2012, 797-813.

Yu.V. Mikhlin et al. Nonlinear normal vibration modes in the dynamics of nonlinear elastic systems. J. of Physics: Conference Series Volume 382 conference 1, 2012.

Y.V. Mikhlin, N.V. Perepelkin. Nonlinear normal modes and their applications in mechanical systems. Proc. of the Institution of Mechanical Engineers, Part C: J. of Mechanical Engineering Science, October 2011, 225 (10), 2369-2384.

A. Klimenko, Yu. Mikhlin. Nonlinear normal vibration modes in pendulum systems. In: Dynamical Systems. Analytical/ Numerical Methods, Stability, Bifurcation and Chaos. (Eds J.Awrejcewicz, M.Kazmierzak, P.Olejnik,J.Mrozowski). Lodz, Poland, 2011, 69-78.

N.Perepelkin, Yu. Mikhlin. Normal modes of forced vibrations in a single disk nonlinear rotor system. In: Dynamical Systems. Nonlinear Dynamics and Control. (Eds J.Awrejcewicz, M.Kazmierzak, P.Olejnik,J.Mrozowski). Lodz, Poland, 2011, 317-324.

K.V. Avramov, Yu.V. Mikhlin. Nonlinear Dynamics of Elastic Systems. Models, Methods, Phenomena. V.1. Moscow-Izhevsk: Regular and Chaotic Dynamics, 2010, 704 p. (in Russian), ISBN 978-5-93972-820-1.

Yu.V.Mikhlin, K.V. Avramov. Nonlinear normal modes for vibrating mechanical systems. Review of Theoretical Developments. Applied Mechanics Review, V. 63 (6), 2010 (21 pages).

Special Issue “Models, Methods and Applications of Dynamics and Control in Engineering Systems” (Eds. J.-M. Balthazar, B.Goncalves, S.Lenci, Y.V.Mikhlin). Mathematical Problems in Engineering, V. 2010, Article ID487684 (21 publications).

Yu.V. Mikhlin, S.G. Mitrokhin. Nonlinear oscillatory processes in vehicles. Int. Applied Mechanics, 11, 2010, 115-123.

Special Issue on Nonlinear Dynamics (Eds. Y.V.Mikhlin and M.P.Cartmell). J. of Sound and Vibration, V.322 (3), 2009, p.475-628.

Yu.V. Mikhlin, K.V. Avramov, G.V. Rudnyeva. Analytical methods for analysis of transitions to chaotic vibrations in mechanical systems. Nonlinear Dynamics and Systems Theory, V.9 (4), 2009, p. 375-408.

I.D. Breslavsky, K.V. Avramov, Yu.V. Mikhlin, R. Kochurov. Nonlinear modes of snap-through motions of shallow arch. J. of Sound and Vibrations, 311, 2008, P. 297-313.

A. Kozmin, Yu. Mikhlin, C. Pierre. Transient in a two-DOF nonlinear system. Nonlinear Dynamics, 51 (1-2), 2008, 141-154.

K.Avramov, Yu. Mikhlin and E.Kurilov. Asymptotic analysis of nonlinear dynamics of simply supported cylindrical shells. Nonlinear Dynamics, 47, 2007, 331-352.

K.Avramov, Yu. Mikhlin. Snap-through truss as absorber of forced oscillations. J. of Sound and Vibration, 2006, 290, 705-722.

Yu.V. Mikhlin, G.V. Manucharyan. Determination of the chaos onset in mechanical systems with several equilibrium positions. Meccanica, 2006, 41, 253-267.

Yu. V. Mikhlin and S. N. Reshetnikova. Dynamical interaction of an elastic sytem and essentially nonlinear absorber, J. of Sound and Vibration, 2005, 283, 91-120.

Yu. V. Mikhlin, T. V. Shmatko and G. V. Manucharyan. Lyapunov definition and stability of regular or chaotic vibration modes in systems with several equilibrium positions. Computers and Structures, 2004, 82, 2733-2742.

K. V. Avramov, Yu. V. Mikhlin. Forced oscillations of a system, containing a snap-through truss, close to its equilibrium position. Nonlinear Dynamics 35, 2004, 361-379.

K. V. Avramov, Yu. V. Mikhlin. Snap-through truss as a vibration absorber. J. of Vibration and Control, 10, 2004, 291-308.

Yu.V.Mikhlin and G.V.Manucharyan. Construction of homoclinic and heteroclinic trajectories in mechanical systems with several equilibrium positions. Chaos, Solitons & Fractals 16, 2003, 299-309.

Yu.V.Mikhlin and B.I.Morgunov. Normal vibrations in near-conservative self-excited viscoelastic nonlinear systems. Nonlinear Dynamics 25, 2001, 33-48.

Yu.V.Mikhlin and A.M.Volok. Solitary transversal waves and vibro-impact motions in infinite chains and rods. Int. J. of Solids and Structure 37, 2000, 3403-3420.

Yu.V.Mikhlin. Analytical construction of homoclinic orbits of two- and three-dimensional dynamical systems, J. of Sound and Vibration 230(5), 2000, 971-983.

Yu.V.Mikhlin, A.F.Vakakis and G.Salenger. Direct and inverse problems encountered in vibro-impact oscillations of a discrete system. J. of Sound and Vibration 216 (2), 1998, 227-250.

I.V.Andrianov, Yu.V.Mikhlin, S.Tokarzevski. Two-point Pade' approximants and their applications to in solving mechanical problems. Mechanika Teoretyczna i Stosovana (J. of Theor. and Appl. Mech.), Warsawa, Poland, 35(3), 1997, 577-606.

Yu.V.Mikhlin and A.L.Zhupiev. An application of the Ince algebraization to the stability of non-linear normal vibration modes. Int. J. of Non-Linear Mechanics 32(1), 1997, 493-509.

Yu.V.Mikhlin. Normal vibrations of a general class of conservative oscillators. Nonlinear Dynamics 11(1),1996,1-16.

Yu.V.Mikhlin. Matching of local expansions in the theory of non-linear vibrations. J. of Sound and Vibration 182(4), 1995, 577-588.