



**Professor Yuri V. Mikhlin**

See:

- <http://web.kpi.kharkov.ua/apm/personal/yuri-v-mikhlin/>
- <https://scholar.google.com.ua/citations?user=63sqaSQAAAAJ&hl=ru>
- [https://www.researchgate.net/profile/Yuri\\_Mikhlin](https://www.researchgate.net/profile/Yuri_Mikhlin)

Department of Applied Mathematics  
National Technical University “Karkiv Polytechnic Institute”, Ukraine

**Education:**

- 1988 Doctor of Science (Physics & Mathematics) from Moscow Institute for Problems in Mechanics, Russian Academy of Sciences. Thesis “Normal vibrations of the nonlinear finite-dimensional systems”
- 1974 PhD (Physics & Mathematics) from Dnepropetrovsk State University
- 1970 Graduated from the Mechanics & Mathematics Faculty of the Dnepropetrovsk State University summa cum laude in Dynamics and Strength of Machine Tools

**Academic Activity and Expertise:**

Nonlinear vibrations, Asymptotic methods in applied mathematics, Nonlinear oscillations and stability of motion, Ordinary differential equations, Application of the group theory in ODE, Differential geometry, Complex variable functions, Variational calculus, Mathematical modeling and other courses.

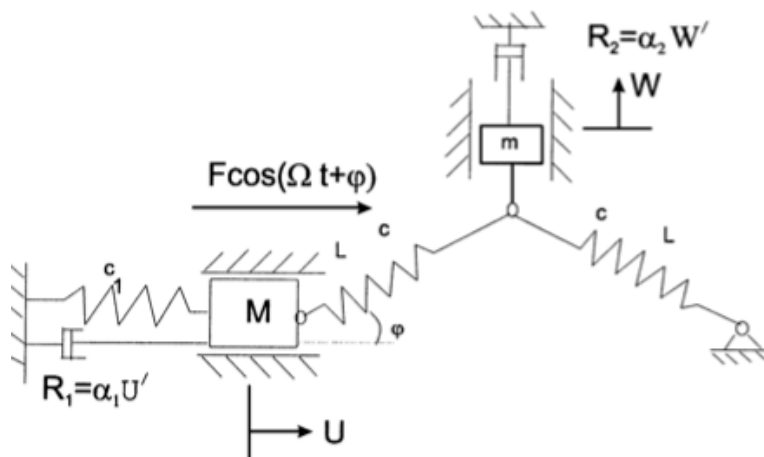
About 48 years of experience in Nonlinear Dynamics and Applied Mathematics.

The main scientific results in: Theory of nonlinear normal vibration modes; Analysis of the nonlinear vibrations stability; Asymptotic methods; Nonlinear Dynamics of elastic systems.

Current research focuses on: Nonlinear normal mode theory; Resonance dynamics of dissipative systems; Nonlinear dynamics of the systems with limited power supply, Nonlinear dynamics of elastic systems, Vibro-absorption problems; Transient and localization problems, Nonlinear waves et al.

Supervisor for one Dr. Sci. Thesis and five PhD theses.

**Selected Publications:**



*Figure 1. Mechanical system under consideration.*

From: K.V. Avramov and Yu.V. Mikhlin, “Forced oscillations of a system, containing a snap-through truss, close to its equilibrium position”, *Nonlinear Dynamics*, Vol. 35, pp 361-379, 2004

Mikhlin, Yu.V., 1995. Matching of local expansions in the theory of non-linear vibrations. *Journal of Sound and Vibration* 182, 577–588.

Vakakis, A.F., Manevich, L.I., Mikhlin, Yu.V., Pilipchuk, V.N., Zevin, A.A., 1996. *Normal Modes and Localization in Non-Linear Systems*. Wiley, New York.

Y. V. Mikhlin 2000 In *Nonlinear Dynamics of Shells and Plates* (eds. M. P. Paidoussis, M. Amabili and P. B. Gonçalves), AMD Vol. 238, pp. 95-103, ASME, New York. Stability of regular or chaotic post-buckling vibration of elastic shells.

Pellicano F, Mikhlin Y, Zolotarev I. *Nonlinear dynamics of shells with fluid-structure interaction*. Prague: Institute of Thermomechanics AS CR; 2002.

K. V. Avramov and Y. V. Mikhlin, "Snap-through truss as a vibration absorber," *Journal of Vibration and Control*, vol. 10, pp. 291-308, February 1, 2004

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

K.V. Avramov, Y.V. Mikhlin, E. Kurilov, Asymptotic analysis of nonlinear dynamics of simply supported cylindrical shells, *Nonlinear Dynamics* 47 (2007) 331–352.

E.A. Kurilov, Y.V. Mikhlin, Nonlinear vibrations of cylindrical shells with initial imperfections in a supersonic flow, *International Applied Mechanics* 43 (2007) 1000–1008.

Breslavsky I., Avramov K.V., Mikhlin Y., Kochurov R.: Nonlinear modes of snap-through motions of a shallow arch. *J. Sound Vib.* 311, 297–313 (2008)

Avramov, K.V., Mikhlin, Yu.: *Nonlinear dynamics of elastic systems*. In: *Models, Methods and Approaches*, vol. 1. Scientific Centre "Regular and Chaotic Dynamics", Moscow [in Russian] (2010)

Konstantin V. Avramov and Yuri V. Mikhlin "Review of applications of nonlinear normal modes for vibrating mechanical systems", *Appl. Mech. Rev.* 2013;65(2):020801-020801-20. doi:10.1115/1.4023533. March 2013

Yuri V. Mikhlin, Konstantin V. Avramov, and Christophe Pierre, "Nonlinear normal modes of vibrating mechanical systems and their applications", ENOC 2014, July 6-11, 2014, Vienna, Austria