Curriculum Vitae

Name: Jüri Majak
University: Tallinn University of Technology (TUT)
Department: Mechanical and Industrial Engineering

Current Position: Professor, Mechanics of Materials

Education: Degree and institution

Dr. Sci. Math (PhD), Tartu University, 1993
BSc, MSc. Tartu University, Applied Mathematics

Academic Experience:

Estonian University of Life Sciences	Assistant	1987-1990
Estonian University of Life Sciences	Senior teacher	1990-1992
Tartu University	Associate professor	1992-2002
Audentes University	Associate professor	2002-2005
Tallinn University of Technology	Senior researcher	2004-2015
Estonian Entrepren. Univ. of Appl. Sci.	Professor	2005-…
Tallinn University of Technology	Lead researcher/Research prof.	2015-2018
Tallinn University of Technology	Professor	2019-…

Postgraduate study: Technical University of Denmark (Lyngby)

Dissertations supervised: 6 PhD-s
Tarmo Velsker, 2012, PhD, Tallinn University of Technology
Henrik Herranen, 2014, PhD, Tallinn University of Technology
Aleksei Snatkin, 2016, PhD, Tallinn University of Technology
Marko , Paavel 2018, PhD, Tallinn University of Technology
Sergei Kaganski, 2018, PhD, Tallinn University of Technology
Maarjus Kirs, 2018, PhD, Tallinn University of Technology

Current lecture courses (2018-2019):
Optimization methods (MSc, Tallinn University of Technology)
Composite Materials (MSc, Tallinn University of Technology)
Mathematical Techniques for Optimal Design (PhD, Tallinn University of Technology)
Basics of Computer Programming (BSc, Estonian Entrepreneurship University of Applied Sciences)
Object Oriented Programming (BSc, Estonian Entrepreneurship University of Applied Sciences)
Web Technologies (BSc, Estonian Entrepreneurship University of Applied Sciences)
Web Programming (BSc, Estonian Entrepreneurship University of Applied Sciences)
HTML5 (BSc, Estonian Entrepreneurship University of Applied Sciences)
Mobile Programming (BSc, Estonian Entrepreneurship University of Applied Sciences)

Ongoing research projects

1. PUT1300 "Numerical methods and algorithms for design of advanced composite and nanostructures (1.01.2016−31.12.2019)", Jüri Majak, Tallinn University of Technology, Faculty of Mechanical

Engineering, Tallinn University of Technology , School of Engineering, Department of Mechanical and Industrial Engineering, holder J.Majak.

2. TAR16012 "Zero energy and resource efficient smart buildings and districts (1.10.2015−1.03.2023)", Tallinn University of Technology, Faculty of Civil Engineering, Department of Structural Design, Chair of Building Physics and Energy Efficiency, holder J. Kurnitski, J. Majak responsible for one focus of three.

3. F15027 "Smart manufacturing and materials technologies competence centre (1.09.2015−31.12.2022)", Tallinn University of Technology, Faculty of Mechanical Engineering, Department of Mechanical and Industrial Engineering, holder Kristo Karjust, J.Majak responsible for subproject.

Major Areas of Creative or Research interest:

- Numerical methods (Haar wavelets, etc.),
- Design optimization methods, algorithms and tools (application to composite, nanostrcutures, etc.),
- Composite materials and structures,
- Mechanics of Materials (Composites, FGM, sheet metal, smart materials with structural health monitoring),
- Nanomechanics (bending, buckling and vibrations of nanostructures).

Publications

Total number of research publication over hundred, 32 of them in journals indexed by ISI Web of Science. Scopus H-index: 17.

Last 10 year publications indexed by ISI Web of Science

1. Majak, J.; Pohlak, M.; Karjust, K.; Eerme, M.; Kurnitski, J.; Shvartsman, B. S. (2018). New higher order Haar wavelet method: Application to FGM structures. Composite Structures, 201, 72−78. 10.1016/j.compstruct.2018.06.013.
2. Majak, J.; Kirs, M.; Eerme, M.; Tungel, E.; Lepikult, T. (2017). Design optimization of graphene laminates for maximum fundamental frequency. Proceedings of the Estonian Academy of Sciences, 66 (4), 354−362.10.3176/proc.2017.4.08.
3. Paavel, M.; Karjust, K.; Majak, J. (2017). Development of a product lifecycle management model based on the fuzzy analytic hierarchy process. Proceedings of the Estonian Academy of Sciences, 66 (3), 279−286.10.3176/proc.2017.3.05.
4. Shvartsman, B.; Majak, J. (2016). Numerical method for stability analysis of functionally graded beams on elastic foundation. Applied Mathematical Modelling, 40 (4-5), 3713−3719, 10.1016/j.apm.2015.09.060.
5. Majak, J.; Shvartsman, B.; Kirs, M.; Pohlak, M.; Herranen, H. (2015). Convergence theorem for the Haar wavelet based discretization method. Composite Structures, 126, 227−232, 10.1016/j.compstruct.2015.02.050.
6. Majak, J.; Shvartsman, B.; Karjust, K.; Mikola, M.; Haavajõe, A.; Pohlak, M. (2015). On the accuracy of the Haar wavelet discretization method. Composites Part B: Engineering, 80, 321−327.
7. Snatkin, A.; Eiskop, T.; Karjust, K.; Majak, J. (2015). Production monitoring system development and modification. Proceedings of the Estonian Academy of Sciences, 64, 567−580.
8. Snatkin, A.; Karjust, K.; Majak, J.; Aruväli, T.; Eiskop, T. (2013). Real time production monitoring system in SME. Estonian Journal of Engineering, 19 (1), 62−75, 10.3176/eng.2013.1.06.
9. Majak, J.; Pohlak, M.; Eerme, M.; Velsker, T. (2012). Design of car frontal protection system using neural networks and genetic algorithm. Mechanika, 18 (4), 453−460.

10. Aruniit, A.; Kers, J.; Majak, J.; Krumme, A.; Tall, K. (2012). Influence of hollow glass microspheres on the mechanical and physical properties and cost of particle reinforced polymer composites. Proceedings of the Estonian Academy of Sciences, 61 (3), 160−165.
11. Herranen, H.; Pabut, O.; Eerme, M.; Majak, J.; Pohlak, M.; Kers, J.; Saarna, M.; Allikas, G.; Aruniit, A. (2011). Design and Testing of Sandwich Structures with Different Core Materials. Journal of Materials Science of Kaunas University of Technology, 17 (4), 1−6.
12. Aruniit, A., Kers, J., Goljandin, D., Saarna, M., Tall, K., Majak, J., Herranen, H. (2011). Particulate Filled Composite Plastic Materials from Recycled Glass Fibre Reinforced Plastics. Materials Science (Medžiagotyra), 17 (3), 276−281.
13. Majak, J.; Pohlak, M. (2010). Decomposition method for solving optimal material orientation problems. Composite Structures, 92 (8), 1839−1845, 10.1016/j.compstruct.2010.01.015.
14. Kers, J.; Majak, J.; Goljandin, D.; Gregor, A.; Malmstein, M.; Vilsaar, K. (2010). Extremes of apparent and tap densities of recovered GFRP filler materials. Composite Structures, 92 (9), 2097−2101.
15. Pohlak, M.; Majak, J.; Karjust, K.; Küttner, R. (2010). Multicriteria optimization of large composite parts. Composite Structures, 92 (9), 2146−2152, 10.1016/j.compstruct.2009.09.039.
16. Karjust, K.; Pohlak, M.; Majak, J. (2010). Optimal adhesion measuring methods of the glass fiber reinforcement layer. Estonian Journal of Engineering, 16 (4), 297−306.
17. Majak, J.; Pohlak, M. (2010). Optimal material orientation of linear and non-linear elastic 3D anisotropic materials. Meccanica, 45 (5), 671−680, 10.1007/s11012-009-9262-7.
18. Karjust, K.; Pohlak, M.; Majak, J. (2010). Technology Route Planning of Large Composite Parts. International Journal of Material Forming, 3, 631−634, 10.1007/s12289-010-0849-2.
19. Majak, J.; Pohlak, M.; Eerme, M. (2009). Application of the Haar Wavelet based discretization technique to orthotropic plate and shell problems. Mechanics of Composite Materials, 45 (6), 631−642, 10.1007/s11029-010-9119-0.
20. Majak, J.; Pohlak, M.; Eerme, M.; Lepikult, T. (2009). Weak formulation based haar wavelet method for solving differential equations. Applied Mathematics and Computation, 211 (2), 488−494, 10.1016/j.amc.2009.01.089.
21. Kers, J.; Majak, J. (2008). Modelling a new composite from a recycled GFRP. Mechanics of Composite Materials, 44 (6), 623−632.