1. Name: 24.6.2024

Tero Tapio Tuovinen ORCID 0000-0001-7787-3836

Date of birth: *19. October 1980*

Citizenship: *Finnish*

2. Education	**Date**	**School**
Doc.	2016	University of Jyväskylä, Field: *Computational science and its applications*
Ph.D.	2011	University of Jyväskylä
M.Sc.	2005	University of Jyväskylä

3. Professional Experience

1.3.2022 – Present	Senior Researcher (Jyväskylä University of Applied Sciences)

4. Professional Experience (Past)

16.03.2020 – 1.3.2022	Researcher (Jyväskylä University of Applied Sciences)
01.01.2019 – 16.3.2020	Research coordinator (University of Jyväskylä)
01.01.2010 – 31.12.2018	Project researcher (University of Jyväskylä)
01.01.2007 – 01.01.2010	Project manager (University of Jyväskylä)
01.07.2005 – 01.01.2007	Ph.D. Student (University of Jyväskylä)
01.08.2004 – 01.12.2004	Technical assistant (project, part-time)
01.08.2000 – 10.08.2005	Student

5. Career breaks: 2002, 2005, 2009, 2011 *4 children*

6. Gained funding

2021 coADDVA EAKR/ERDF (grant writer)
2021 iADDVA EAKR/ERDF (grant writer)
2021 Soma – soodasakka masuunikuona EAKR/ERDF (grant writer)
2020 Optimal suppression of transverse vibrations of hydrothermoelastic moving web (Academy of Finland, mobility) (PI)
2019 JY Kimmo-X (purchase of a service project) (PI)
2019 Eccomas Thematic conference Computational Sciences and AI in Industry (CSAI): new digital technologies for solving future societal and economical challenges 12.14.6.2019. TSV (PI)
2018 Industry 4.0: production technologies for added manufacturing, Reg. Council of Cent. Finland. (PI)
2018 Enhancing Business Capability by Optimizing Materials Added in Materials Technology (Opti3D), Regional Council of Central Finland. (PI)
2018 Sustainable bioresidual concrete (KBB) – EAKR/ERDF (PI, JYU)
2018 Modelling of drying process (DRY-PLY) (purchase of a service project) (PI)
2017 Vehicle Routing in Time-Dependent Networks (Academy of Finland, mobility) (PI)
2016 Intelligent logistics for robotics (Academy of Finland, mobility) (PI)
2016 Industrially Functional Surfaces (Teolliset funktionaaliset pinnat) - EAKR/ERDF (PI, JYU)
2016 Nanosellun mittaaminen spektrikuvantamisen avulla (SELLU) (purchase of a service project) (PI)
2015 Grant for international mobility for researchers and PhD students for strengthening strategic partnership and career development (University of Jyväskylä Research Council), Barcelona 1.5.2016-31.7.2016, 2016 (Particle Finite element methods) (PI)
2015 Spektrikuvantamisella kilpailukykyä Keski-Suomeen, Regional Council of Central Finland, (together with Ilkka Pölönen) (grant writer)
2014 ECCOMAS Thematic Conference – CM3 Computational Multi Physics, Multi Scales and Multi Big Data in Transport Modeling, Simulation and Optimization (25-27.5.2015) (PI)
2014 JY Material Value Streams (purchase of a service project) (PI)
2013 JY Modeling of Wave Energy Machine (purchase of a service project) (PI)
2013 International conference for Math. Modeling and Optimization in Mechanics (6.-7.3.2014) (PI)

7. Supervisions

Ph.D: Jaana Räisänen (2023) M.Sc. BSc.: Marianne Lampi (2018), Jaana Räisänen (2018), Pekka Makkonen (2016), Timo Konu (2015), Tuomo Varis (2014), Miika Raunio (2014), Auri Kaihlavirta (2010), Juha Jeronen (2008), Mikko Seppänen (2007), Tommi Grenfors (2007).

8. Teaching University pedagogical studies (10 credits), 2018

10. Inventions and invention disclosures, awards and prizes

- Congress Ambassador Award, 2019, Jyväskylä Convention Bureau (1000 Euros)
- Article of the year 2012, Finnish Association For Structural Mechanics.
- Innovate event to Jyväskylä – competition, 2017, 1st prize (500 euros), City of Jyväskylä.
- Tero Tuovinen (20%), Anna-Leena Erkkilä (40%), Ilkka Pölönen (20%), Juha-Pekka Huhtanen (20%): Particle size analysis of nanofibers in a water suspension or as a dry fiber layer using spectral imaging. 2017
- Tero Tuovinen, Matti Nurmia (50% / 50%) An Omnidirectional Turbine for Rivers and Tidal Currents (energy production, clean technology, water power) 2010
- Tero Tuovinen, Paperikoneen rainan kireysprofiilin optimointimenetelmä ja sen sovellus (Paper web tension profile optimizer and its application) 2011

11. Academic merits and publications

Class	Number of
A1 Journal article-refereed, Original research	26
A3 Book section, Chapters in research books	11
A4 Conference proceedings	17
B1/B2 Unrefereed journal articles / book section	3 / 1
C1/C2 Book / Book (Editor)	3/16
D1 / E1 Article in professional media / Popularised article, newspaper article	4 / 3
D4 Published developing or research report	30
G1/ G2 / G4 Bachelor thesis / Master's thesis / Ph.D. thesis (monograph)	1/1/1
Supervisions (Master's thesis)	9
Membership in conference committees (organizing and scientific)	33
Research projects and funding	20

12. Positions of trust

2013 – Present	Eccomas: Managing board member (European Community of Comp. Methods in Applied Sciences)
2014 – Present	Eccomas member of Computational Solids and Structural Mechanics committee
2014 – 2020	Member of the Faculty Council (JYU)
2016 – 2020	Expert member of the region management team
2014 – Present	Evaluator of the COST Action Trans Domain Proposals (3)
2013 – 2017	Steering group member for research information systems (JYU)
2008 – 2013	Deputy Member of the Faculty Council (JYU)
2009 – 2010	Member of the Board of The Finnish Society of Computational Sciences
2008 – 2010	Deputy Member of the Department Council (JYU)
2007 – 2009	Secretary and Treasurer of The Finnish Society of Computational Sciences

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List of latest publications

C1 (Books): (3)

Juha Jeronen, Tero Tuovinen and Matti Kurki, **Fundamental Mathematical Modeling of Additive Manufacturing,** Springer Tracts in Additive Manufacturing, Springer International Publishing, ISBN: 978-3031472497, (2024).

Alexander Yu. Krylatov, Victor V. Zakharov, and Tero T. Tuovinen, **Optimization models and methods for equilibrium traffic assignment,** Springer Tracts on Transportation and Traffic. Springer Tracts on Transportation and Traffic (15), Springer International Publishing, eBook ISBN 978-3-030-34102-2, DOI 10.1007/978-3-030-34102-2 (228 pages), 2020

Banichuk, N., Barsuk, A., Jeronen, J., Tuovinen, T., Neittaanmäki, P., **Stability of Axially Moving Materials,** Solid Mechanics and Its Applications, Springer International Publishing, ISBN: (Online) 978-3-030-23803-2, (Print) 978-3-030-23802-5. DOI: 10.1007/978-3-030-23803-2, (642 Pages), 2020.

Nikolay Banichuk, Pekka Neittaanmäki, Juha Jeronen, Tytti Saksa and Tero Tuovinen, **Mechanics of moving materials,** Solid Mechanics and its Applications, Springer International Publishing, ISBN: 978-3-319-01744-0 (Print) 978-3-319-01745-7 (Online), (2014).

A1 (Journal article-refereed, Original research): (27)

Jeronen, Juha, Tero Tuovinen, and Matti Kurki**. "One-Dimensional Thermomechanical Model for Additive Manufacturing Using Laser-Based Powder Bed Fusion"** *Computation* 10, no. 6: 83. https://doi.org/10.3390/computation10060083 (2022)

N Banichuk, AA Barsuk, S Ivanova, T Tuovinen, **Spectral Analysis of Translation-Invariant Mechanical Systems with Application to Structural Vibrations and Stability,** International Journal of Mechanics, 246-253, 2021.

Erkkilä, A. L., Leppänen, T., Virkajärvi, J., Parkkonen, J., Turunen, L., & Tuovinen, T. **Quasi-brittle porous material: Simulated effect of stochastic air void structure on compressive strength.** Cement and Concrete Research, 139, 106255 (2020).

J Räisänen, A Ojala, T Tuovinen, **Building Trust in the Sharing Economy: Current Approaches and Future Considerations**, **Journal of Cleaner Production, 123724**

N Banichuk, S Ivanova, E Makeev, J Jeronen, T Tuovinen, **Added-Mass Based Efficient Fluid–Structure Interaction Model for Dynamics of Axially Moving Panels with Thermal Expansion,** Mathematical and Computational Applications 25 (1), 9, 2020

Jaana Räisänen, Tero Tuovinen, **Digital innovations in rural micro-enterprises**, Journal of Rural Studies, Volume 73, Pages 56-67, 2020

Nikolay Banichuk, Alexandr Barsuk, Svetlana Ivanova, Juha Jeronen, Evgeni Makeev & Tero Tuovinen, **Analysis and optimization against buckling of beams interacting with elastic foundation,** Mechanics Based Design of Structures and Machines, Pages 615-633, 2018

Banichuk, Nikolay; Barsuk, Alexander; Jeronen, Juha; Neittaanmäki, Pekka; Tuovinen, Tero, **On some bifurcation analysis techniques for continuous systems,** Rakenteiden mekaniikka, 49 (2), 52-68, (2016)

Nikolay Banichuk, Alexandr Barsuk, Svetlana Ivanova, Juha Jeronen, Evgeni Makeev & Tero Tuovinen, **Vibrations of a continuous web on elastic supports,** Vibrations of a continuous web on elastic supports, Mechanics Based Design of Structures and Machines, 2016, DOI: 10.1080/15397734.2016.1261034

Matti Kurki, Juha Jeronen, Tytti Saksa, Tero Tuovinen, **The Origin of In-plane Stresses in Axially Moving Orthotropic Continua,** International Journal of Solids and Structures. (Available online 2 December 2015), 2015, http://dx.doi.org/10.1016/j.ijsolstr.2015.10.027

Nikolay Banichuk, Juha Jeronen, Svetlana Ivanova, Tero Tuovinen, **Analytical approach for the problems of dynamics and stability of a moving web,** Rakenteiden Mekaniikka (Journal of Structural Mechanics) Vol. 48, No 3, 2015, pp. 136 – 163, 2015

Anna-Leena Erkkilä, Teemu Leppänen, Markku Ora, Tero Tuovinen and Ari Puurtinen **Hygroexpansivity of anisotropic sheets,** Nordic Pulp and Paper Research Journal; 30(02):326-334. June 2015

Anna-Leena Erkkilä, Teemu Leppänen, Jari Hämäläinen, Tero Tuovinen, **Hygro-elasto-plastic model for planar orthotropic material,** International Journal of Solids and Structures, Volume 62, Pages 66–80, doi:10.1016/j.ijsolstr.2015.02.001, 1 June 2015

Banichuk N., Barsuk, A. , Jeronen, J., & Tuovinen, T. (2014) ***Variational approach for analysis of harmonic vibration and stability of moving panels*.** Vol. 47, No 4, 2014, pp. 148 - 162.7 (1) pp. 1-16, Rakenteiden mekaniikka *(Journal of Structural Mechanics)* Finnish Association For Structural Mechanics *ISSN: 0783-6104*. Published: 31 December 2014

Banichuk N., Ivanova, Neittaanmäki, P. & Tuovinen, T. (2014). ***Reliable estimates in the anisotropic heat conduction problems*.** *Journal of Uncertainty Analysis and Applications ISSN: 0783-6104*. 2014, **2**:19 doi:10.1186/s40467-014-0019-z Published: 21 August 2014

Banichuk. N., Ivanova, S, Jeronen, J., & Tuovinen, T. (2014). ***Periodic spectral stability analysis of axially moving beam with elastic supports*.** 47 (1) pp. 1-16, Rakenteiden mekaniikka *(Journal of Structural Mechanics)* Finnish Association For Structural Mechanics *ISSN: 0783-6104*. 2014

M. Tirronen, N. Banichuk, J. Jeronen, T. Saksa, T. Tuovinen, **Stochastic analysis of the critical velocity of an axially moving cracked elastic plate**, Probabilistic Engineering Mechanics, Available online 13 April 2014, ISSN 0266-8920, http://dx.doi.org/10.1016/j.probengmech.2014.04.001. (http://www.sciencedirect.com/science/article/pii/S0266892014000265)

K. Arstila, J. Julin, M.I. Laitinen, J. Aalto, T. Konu, S. Kärkkäinen, S. Rahkonen, M. Raunio, J. Itkonen, J.-P. Santanen, T. Tuovinen, T. Sajavaara, **Potku – New analysis software for heavy ion elastic recoil detection analysis**, Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms, ISSN 0168-583X, http://dx.doi.org/10.1016/j.nimb.2014.02.016. (http://www.sciencedirect.com/science/article/pii/S0168583X14002717)

Nikolay Banichuk, Juha Jeronen, Pekka Neittaanmäki, Tytti Saksa, Tero Tuovinen**, Theoretical study on travelling web dynamics and instability under non-homogeneous tension**, International Journal of Mechanical Sciences, Volume 66, January 2013, Pages 132-140, ISSN 0020-7403, http://dx.doi.org/10.1016/j.ijmecsci.2012.10.014. (http://www.sciencedirect.com/science/article/pii/S0020740312002342)

Tytti Saksa, Nikolay Banichuk, Juha Jeronen, Matti Kurki, Tero Tuovinen, **Dynamic analysis for axially moving viscoelastic panels, International Journal of Solids and Structures**, Volume 49, Issues 23–24, 15 November 2012, Pages 3355-3366, ISSN 0020-7683, http://dx.doi.org/10.1016/j.ijsolstr.2012.07.017. (http://www.sciencedirect.com/science/article/pii/S0020768312003034)

Saksa, T., Jeronen, J., & Tuovinen, T. (2012). ***Stability of moving viscoelastic panels interacting with surrounding fluid*.** 45 (3) Rakenteiden mekaniikka *(Journal of Structural Mechanics)* Finnish Association For Structural Mechanics *ISSN: 0783-6104*. (88 - 103) http://rmseura.tkk.fi/rmlehti/2012/nro3/RakMek_45_3_2012_1.pdf