CURRICULUM VITAE

OLEG GENDELMAN

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ACADEMIC DEGREES

2000 – **Doctor of Sciences**, Physics and Mathematics, from the Higher Commission of Attestation, Russian Ministry of Education, thesis name: "Investigation of Structural Defects and Localized Excitations in Polymer Crystals and Glasses by Methods of Nonlinear Dynamics"

1995 - **Ph.D**., Physics and Mathematics, from N.N.Semenov Institute of Chemical Physics RAS

1992 – **M Sc**, Applied Physics and Mathematics, Moscow Institute of Physics and Technology, Department of Molecular and Chemical Physics

ACADEMIC APPOINTMENTS

2015 - now : Samuel and Anne Tolkowsky Professor, Faculty of Mechanical Engineering, Technion – Israel Institute of Technology, Haifa, Israel

2014 – 2015: Professor with tenure, Faculty of Mechanical Engineering, Technion – Israel Institute of Technology, Haifa, Israel

2007 - 2013: Associate Professor with tenure, Faculty of Mechanical Engineering, Technion – Israel Institute of Technology, Haifa, Israel

2003 - 2007: Senior Lecturer, Faculty of Mechanical Engineering, Technion – Israel Institute of Technology, Haifa, Israel

2002 - 2003: Leading Research Fellow, N.N.Semenov Institute of Chemical Physics RAS, Department of Polymer and Composite Materials

2000 - 2002: Senior Research Fellow, N.N.Semenov Institute of Chemical Physics RAS, Department of Polymer and Composite Materials

1995 – 2000: Research Fellow, N.N.Semenov Institute of Chemical Physics RAS, Department of Polymer and Composite Materials

1992 – 1995: Graduate student, Moscow Institute of Physics and Technology

RESEARCH INTERESTS

Applied Mathematics, Nonlinear dynamics, nonlinear oscillations in discrete and continuous systems, nonlinear normal modes, energy transfer, vibration protection and mitigation, dynamics and transport phenomena in low-dimensional systems, and applications to polymer systems and granular materials

TEACHING EXPERIENCE

Linear Systems – undergraduate;

Dynamics – undergraduate

Analytic Methods in Mechanical Engineering 1 –undergraduate & graduate

Analytic Dynamics – undergraduate & graduate

DEVELOPMENT OF COURSES AND ACADEMIC PROGRAMS

2021 – Development of new modular undergraduate program for the Faculty (approved and works since 2021).

2005 – course 038801 - Models of Nonlinear Dynamics - graduate

TECHNION ACTIVITIES

Since 2016 – Member of Technion Senate

2013 –2016 Technion Academic Development Committee

Since 2004 - Technion Committee on Evaluation of Candidates from the Former Soviet Union

Since 2007 - Technion Interdisciplinary Committee on Polymer Engineering

DEPARTAMENTAL ACTIVITIES

2019 – 2022 Dean of Faculty of Mechanical Engineering

2017 – 2018 Vice – Dean on Graduate Studies

2010 – 2012 Undergraduate Studies Coordinator

2008 - 2009 Coordinator of Excellence Programs ("Brakim" and "Reamim")

2004 – 2007 Faculty Seminar Coordinator

PUBLIC PROFESSIONAL ACTIVITIES

Member of Editorial Board

Scientific Reports – since 2016

HONORS

2018 – Cooper Award for Excellence in Research, Technion

2016 – "Person of the year" award in the field of science, 9th Channel of Israel TV.

2016 – Outstanding Referee award, American Physical Society

2015 - Samuel and Anne Tolkowsky Chair in Mechanical Engineering

2012 – Water Arbitration Prize, Institution of Mechanical Engineers, London, UK , for the best paper published in 2011.

2011 – Award for Outstanding Contribution, Brakim program, IDF

2010 – Included on list "Outstanding Immigrant Scientists" by Ministry of Absorption.

2006 - Evelyn and Salman Grand Academic Lectureship, Technion, Israel

2003 – Horev Fellow, Shalom and Taub foundations, Program "Leaders in Science and Technology", Technion, Israel

2001 - Acting Member, Russian Academy of Natural Sciences

2001 – Outstanding Researcher Stipend, Russia Academy of Sciences

2000 – Young Scientist Fellowship, Russian Academy of Sciences

1998 - State Fellowship for Outstanding Researchers

1994 - Soros Graduate Student Award

MEMBERSHIP IN PROFESSIONAL SOCIETIES

SIAM, ASME, EUROMECH

POSTDOCTORAL ASSOCIATES

1. Dr. Avramov Konstantin, 2006
2. Dr. Serov Alexander, 2007
3. Dr. Strozzi Matteo, 2018
4. Dr. Kravetc Pavel, 2019
5. Dr. Farid Maor, 2020
6. Dr. Majdi Gzal, 2022

SUPERVISION OF GRADUATE STUDENTS

Theses Completed – PhD (9)

1. Starosvetsky Yuli – primary supervisor, 2009, "Strongly Nonlinear Vibration Absorber" (Assistant Professor, Faculty of Mechanical Engineering, Technion). Pnueli Prize, 2009
2. Zolotarevskiy Vadim – primary supervisor, 2016, "Heat Transport in Low-dimensional Models: Effects of Disorder and Dimensionality" (co-superised with Asst. Prof. Y. Starosvetsky).
3. Farid Maor – primary supervisor, 2017, "Nonlinear Liquid Sloshing in Partially-Filled Tanks:Modelling, Exploration and Mitigation"
4. Grinberg Itay – primary supervisor, 2017, "Localization and Energy Transport in Vibro-Impact Systems".
5. Perchikov Nathan – primary supervisor, 2019,' Nonlinear Dynamics of Discrete Mechanical Systems with Flat Dispersion Bands.
6. Shiroky Itzhak – primary supervisor, 2020, "Front propagation in bi-stable non-degenerate systems: model dependence and universality".
7. Paul Jithu – primary supervisor, 2021, "Kapitza resistance in linear and nonlinear chain models"

8. Gazal Majdi – primary supervisor, 2022, “Stationary and Transient Nonlinear Processes in Engineering Systems”
9. Karmi Gleb – primary supervisor, 2022, “Analytic Exploration of Safe Basins in a Benchmark Problem of Forced Escape”

Theses Completed – MSc (33)

1. Starosvetsky Yuli – primary supervisor, 2006, “Optimization of Strongly Nonlinear Vibration Absorber” (continued to PhD studies). Barazani Prize, 2006
2. Shiroky Itzhak - primary supervisor, 2008, "Parametrically Excited Oscillator with Nonlinear Energy Sink" (“Brakim” student program[1], continued to PhD studies]
3. Meimukhin Danila – primary supervisor, 2008, “Systems with Strongly Non Linear Attachment Under Periodic Impact Loading” (PhD student at the Faculty).
4. Shvartsman Rina – primary supervisor, MSc, 2010, "Non-Fourier Heat Conduction in Microscopic Models of Dielectrics" (Continues PhD studies in Australia).
5. Bar Tamir – primary supervisor, 2010, “Suppression of Limit Cycle Oscillations with the help of Strongly Nonlinear Attachment". (“Brakim” student program, currently: officer, IDF)
6. Dubrovsky Alexander – co – supervisor (primary - Dr. M.Shusser), "Mass Transfer Controlled Bubble Growth in Concentrated Polymer Solutions", 2010, (PhD student at the Faculty).
7. Madar Baruh – primary supervisor, 2010 "Suitability of continuous Equations of Heat Conduction in Microscopic Models of Dielectrics", (external, Iscar).
8. Shalev Ariel - primary supervisor, 2010 " Recoiling of weapon in moving vehicles", (“Brakim” student program, currently: officer, IDF).

[1]“Brakim” program is a special BSc and MSc program for outstanding students, trained for leading RnD positions in Israel Defense Force.

9. Shuster Guy Sergei –primary supervisor (together with Prof. Y. Ben-Haim), 2011, "Design of suspension system for an off-road vehicle under uncertainity of the terrain" ("Brakim" student program, currently: officer, IDF).
10. Kachman Tal – primary supervisor, 2011 , " Nonstationary heat conduction in disordered lattices"
11. Kedem Shelli - primary supervisor, 2011 topic: "Dynamics of Localization in Systems with Neutral Delay Coupling" ("Brakim" student program, currently: officer, IDF).
12. Edelman Kobi - primary supervisor, 2012, topic: "Dynamics of Self - Excited oscillators with Neutral Delay Coupling" (Rafael)
13. Avraham Ofir - primary supervisor, 2012, topic: "Nonlinear phenomena in Hydraulic Vibration Absorbers" ("Brakim" student program, currently: officer, IDF)
14. Ramus Artyom – co-supervisor (together with Dr. M.Shusser), 2013, topic: "Laminar Flow in a Curved Pipe with a Sudden Expansion"
15. Domany Elad - primary supervisor, 2013, topic: "Mitigation of undesired limit cycle oscillations in self – excited nonlinear systems" ("Brakim" student program, summa cum laude, Barazani prize).
16. Benarous Nir – primary supervisor, 2014, topic: "Nonlinear Energy Sink with Combined Nonlinearities" ("Brakim" student program).
17. Veremkroit Michael - primary supervisor, 2014, topic: "Analytic Exploration of Discrete Breathers in a Forced-Damped Klein-Gordon Type Chain" ("Brakim" student program)
18. Halioua Guy – primary supervisor, 2014, topic: "Waves of Collapse in Nondegenerate Chain Arrays" ("Brakim" student program)
19. Uzan Nissan - primary supervisor, 2015, topic "Quenching and synchronization in systems of phase-only oscillators with time delay" ("Brakim" student program).
20. Erez Ariel - primary supervisor, 2015, topic: "Dynamics of Van Der Pol Oscillator with Rotational Energy Sink" (external)

21. Karmi Gleb – primary supervisor, 2015, topic: “Bouncing Ball Inside the Vibrating Circular Fence Chaotic System Analysis” (external)
22. Farid Maor – primary supervisor, 2015, topic: “Tuned Pendulum as Nonlinear Energy Sink for Broad Energy Range” (“Brakim” student program)
23. Alloni Aviv – primary supervisor, 2015, topic: “Dynamics of Forced System with Vibro Impact Energy Sink” (“Brakim” student program)
24. Slavkin Ilya – primary supervisor, 2015, topic: “High Frequency Nonlinear Micro Mass Sensor of Enhanced Performance and Sensitivity” (“Brakim” student program)
25. Degtyar Andrey – primary supervisor, 2018, topic "Flexible and Adaptable Ankle Foot Orthosis for Walking Style Correction of Post Stroke Patients".
26. Naiger Dan – primary supervisor, 2019, " Escape of a Forced-Damped Particle from a Potential Well: Transient Response".
27. Ezra Tal - primary supervisor, 2019, "Escape of excited two DOF system from potential well".
28. Shaban Noa – primary supervisor, 2019, "Non-reciprocity in Non-Dispersive Waveguides with Strongly Nonlinear Coupling"
29. Tzemah Naor – primary supervisor, 2020, "Accelerating oscillatory fronts in a chain with nonlocal interactions: effect of linear spectrum"
30. Zussman Dar – primary supervisor, 2020, "' Effect of finite vessel stiffness on transition from two-dimensional liquid sloshing to swirling: reduced-order modeling".
31. Moskovitch Omer – primary supervisor, 2021, “Resonance and Energy Transfer in Forced Vibro-Impact Systems with Compliance”
32. Bader Alla – primary supervisor, 2021, “Supratransport in a Vibro-Impact Oscillatory Chain”
33. Hoffman Yuval – primary supervisor, 2022, “Transition to 3D Motion in an Equivalent Mechanical Model of Nonlinear Liquid Sloshing”
34. Engel Amit – primary supervisor, 2023, “Escape of Two DOF Dynamical System from the Potential Well”

Theses in progress – PhD

1. Varshavchik Evgeniy – started in 2023

Theses in Progress – MSc

1. Veltman Yuval – started in 2021
2. Kanciper Yuval – started in 2023
3. Wolfovich Yuval – started in 2023
4. Avitan Ori – started in 2023

RESEARCH GRANTS

2023-2025 **– Deutsche Forschungsgemienschaft (DFG**), grant 508244284, "Escape dynamics in Engineering Systems", PIs: Prof A. Fidlin (Karlsruhe Institute of Technology), Prof. O.V.Gendelman, Euro 116,250 (for all period).

2021-2025– **Israel Science Foundation**, grant 2598/21, "Intermodal Targeted Energy Transfer.", PI, NIS 230,000 for 2021-2022.

2020 – 2021, **MISTI Foundation, MIT-Israel Zuckerman STEM Fund**, Transient strongly nonlinear dynamics: opportunities and challenges, PIs: Prof. Themistoklis Sapsis, Prof. O.V.Gendelman, $25,000.

2017-2021, **PAZY Foundation,** grant 298/18, "Liquid Sloshing in Seismically Excited Tanks: Prediction and Mitigation of Structural Damage", NIS 209,000 for 2017-2018, co-PI: Dr. Eilon Shimshi, CI: Prof. Pinhas Bar-Yoseph.

2017-2021– **Israel Science Foundation**, grant 1696/17, "Energy exchanges, resonances and waves in essentially nonlinear systems.", PI, NIS 230,000 for 2017-2018.

2013-2017 – **Israel Science Foundation**, grant 838/13, "Localization in Forced/Damped Strongly Nonlinear Systems", PI, NIS 170,000 for 2013.

2009–2013 – **Binational Science Foundation (BSF)**, grant 2008055 – Nonlinear Dynamics of Oscillators Exhibiting Targeted Energy Transfer, $33,000 for 2009, other

PIs: Professor Alexander Vakakis, Professor Lawrence Bergman, University of Illinois, Urbana – Champaign

2008 – **Royal Society of Edinburgh**, joint research with Prof. M. Wiercigroch, University of Aberdeen

2006-2009 – **Israel Science Foundation**, grant 486/05 – "Strongly Nonlinear Vibration Absorber", PI, NIS180.000 for 2006.

1997-2002 – Russian Foundation of Basic Research (participant of 11 research grants with Profs. L. Manevitch, A.A. Berlin, A.V.Savin, V.G. Oshmyan and L.A.Novokshonova as PIs, 6 travel grants for participation in international conferences).

2001 – 2003 Air Force Office of Scientific Research. Contract 00-AF-B/V-0813 (Dr. Dean Mook is the Grant Monitor, PIs – Prof. Alexander Vakakis and Prof. Larry Bergman, University of Illinois in Urbana - Champaign), topic : "Concept of energy sink and strongly nonlinear vibration absorbers", personal funding - $25.000.

2001 – Young Researcher Grant (6^{th} Competition, grant No. 123), Russia Academy of Sciences, Principal Investigator (group of 7 participants), topic: "Dynamical description of transfer processes in polymer crystals"

PATENTS

A.Degtyar and **O.V.Gendelman,** FOOT ORTHOSIS, filed as U.S. Application Serial Number 62/813,894, on March 5, 2019

PUBLICATIONS

Theses

1. "Investigation of Structural Defects and Localized Excitations in Polymer Crystals and Glasses by Methods of Nonlinear Dynamics", DSc thesis, Institute of Chemical Physics RAS, 1999
2. Structural Defects and Plasticity in Low-molecular and Polymer Glasses", PhD thesis, Institute of Chemical Physics RAS, 1995, supervisor – Prof. L.I.Manevitch

Refereed papers in professional journals

Oleg Gendelman
Curriculum vitae
Continued

Published papers

Single – authored papers are printed boldface. In the papers published with supervised students and postdocs, their names are underlined.

1. **O.V. Gendelman** and L.I. Manevitch, Nonlinear dynamics of a diatomic Toda lattice and heat-conduction problem in quasi-one-dimensional crystals, *Sov. Phys. JETP*, v.102(2), 511-521, 1992
2. **O.V. Gendelman** and L.I. Manevitch, New model of plastic deformation of disordered systems. *Journal of Physics: Condensed Matter*, v.5, 1633-1642, 1993
3. **O.V. Gendelman** and L.I. Manevitch, Linear and Nonlinear Excitations in Polyethylene Crystal, *Zhurnal. Fizicheskoi Khimii*, v.69, 57-61, 1995
4. N.K.Balabaev, **O.V. Gendelman**, M.A.Mazo and L.I. Manevitch, Molecular Dynamics Modeling of Essentially Nonlinear Phenomena in Polyethylene Crystals *Zhurnal Fizicheskoi Khimii*, v.69, 24-27, 1995
5. **O.V. Gendelman** and L.I. Manevitch, A model of plastic deformation and localized vibration modes in 3D glass, *Journal of Physics: Condensed Matter*, v.7, .6993-7004, 1995
6. **O.V. Gendelman** and L.I. Manevitch, The description of polyethylene crystal as a Continuum with internal degrees of freedom. *International Journal of Solids and Structures*. v.33, 1781-1798, 1996
7. N.K.Balabaev, **O.V. Gendelman** and L.I. Manevitch, Self-assembly of domain wall of molecular twist defects in polyethylene crystal, *Macromolecular Symposia*, v.106, 31-39, 1996.
8. **O.V. Gendelman** and L.I. Manevitch, Structural Defects and Low-Frequent Localized Modes in Disordered Systems, *Zhurnal Experimentalnoi i Teoreticheskoi Fiziki*, v. 110(1), 287-297, 1996
9. N.K.Balabaev, **O.V. Gendelman**, M.A.Mazo and L.I. Manevitch, Modeling Twist Domain Walls in Polyethylene Crystals, *Vysokomolekylarnye Soedineniya, ser. A*, v.38, 676-681, 1996.
10. **O.V. Gendelman** and L.I. Manevitch, Exact Soliton-Like Solutions in Generalized Dynamical Models of a Quasi-One-Dimensional Crystal, *Zhurnal Experimentalnoi i Teoreticheskoi Fiziki*,, 85(4), 824-826, 1997

11. **O.V. Gendelman** and L.I. Manevitch, Linear and nonlinear excitations in a polyethylene crystal. 1. Vibration modes and linear equations *Macromolecular Theory and Simulations*, v.7, 579-589, 1998
12. **O.V. Gendelman** and L.I. Manevitch, Linear and nonlinear excitations in a polyethylene crystal. 2 Nonhomogeneous states and nonlinear excitations, *Macromolecular Theory and Simulations* v.7, 591-598, 1998
13. **O.V. Gendelman** and L.I. Manevitch, Asymptotic Study of Damped 1D Oscillator with Close to Impact Potential, in: *Dynamics of Vibro-Impact Systems*, Springer, ed. V.I. Babitsky, 159-166, 1998
14. A.A. Berlin, **O.V. Gendelman**, N.N. Sinelnikov, M.A .Mazo and L.I. Manevitch, The Analysis of Mechanical and Thermodynamical Properties of Binary System of Disks Depending on their Ordering, *Doklady Akademii Nauk*, v.361, 779-783, 1998
15. A.A. Berlin, **O.V. Gendelman**, N.N. Sinelnikov, M.A. Mazo and L.I. Manevitch, On Solid-Liquid Transition in plane disk systems, *Journal of Physics: Condensed Matter*, v.11, 4583-4596, 1999
16. A.A. Berlin, N.N. Sinelnikov, **O.V. Gendelman**, M.A. Mazo and L.I. Manevitch, On the Solid-Liquid transition in the system of disks on a plane, *Biofizika*, v.44,. 953-955, 1999
17. G. Salenger, A.F. Vakakis, **O.V. Gendelman**, I.V. Amdrianov and L.I. Manevitch, Transitions from strongly- to weekly-nonlinear motions of damped nonlinear oscillators, *Nonlinear Dynamics*, v.20, 99-114, 1999
18. A.V.Savin and **O.V. Gendelman**, Torsion Solitons in Linear Macromolecules, *Vysokomolekylarnye Soedineniya, Ser.A*, v.41, .263-270, 1999
19. **O.V. Gendelman** and A.F. Vakakis, Transition from Localization to Nonlocalization in Strongly Nonlinear Damped Oscillators, *Chaos, Solitons and Fractals*, v. 11, 1535-1542, 2000
20. **O.V. Gendelman** and L.I. Manevitch, Reflection of Short Rectangular Pulses in the ideal string attached to strongly nonlinear oscillator, *Chaos, Solitons and Fractals*, v. 11, .2473-2477, 2000

21. A.A. Berlin, N.N. Sinelnikov, **O.V. Gendelman**, M.A.Mazo and L.I. Manevitch, An analysis of the structure and thermodynamic properties of bicomponent systems of disks and spheres, *Russian Journal of Physical Chemistry*, v.74, S46-S51, 2000
22. **O.V. Gendelman** and A.V.Savin, Normal heat conductivity of the one-dimensional lattice with periodic potential of nearest-neighbor interaction, *Phys. Rev. Letters*, v. 84, 2381-2384, 2000
23. **O.V. Gendelman**, K.E.Kuporosov and L.I. Manevitch, The Formation of Soliton-type Nonlinear Excitations During Heat Transfer in a Crystalline Poly(ethylene) Chain, *Polymer Science, ser. A*, v.42, 1337-1345, 2000
24. A.V.Savin and **O.V. Gendelman**, On the finite thermal conductivity of a one – dimensional rotator lattice, *Physics of the Solid State*, v.43, 355-364, 2001
25. **O.V. Gendelman Transition of Energy to a Nonlinear Localized Mode in a Highly Asymmetric System of Two Oscillators, *Nonlinear Dynamics*, v.25, 237-253, 2001**
26. **O.V. Gendelman**, A.F. Vakakis, L.I. Manevitch and R. McCloskey, Energy Pumping in Nonlinear Mechanical Oscillators I: Dynamics of the Underlying Hamiltonian System, *Journal of Applied Mechanics – Transactions of the ASME*, v.68, 34-41, 2001
27. A.F. Vakakis and **O.V. Gendelman**, Energy Pumping in Nonlinear Mechanical Oscillators II: Resonance Capture, *Journal of Applied Mechanics – transactions of ASME*, v.68, 42-48, 2001
28. V.V. Ginzburg, **O.V. Gendelman** and L.I. Manevitch, Simple "Kink" Model of Melt Intercalation in Polymer-Clay Nanocomposites, *Physical Review Letters*, v.86, 5073-5075, 2001
29. N.K. Balabaev, **O.V. Gendelman** and L.I. Manevitch, Supersonic Motion of Vacancies in a Polyethylene Crystal, *Physical Review E*, v.64, 036702 (1-8), 2001
30. A.A. Berlin, N.N. Sinelnikov, **O.V. Gendelman**, M.A.Mazo and L.I. Manevitch, Melting of Crystals Composed of Elastic and Lennard – Jones Particles, *Doklady Physical Chemistry*, v.382, 66-69, 2002

31. A.F. Vakakis, L.I. Manevitch, **O. Gendelman** and L. Bergman, Dynamics of Linear Discrete Systems Connected to Local Essentially Nonlinear Attachments. *Journal of Sound and Vibration*, v.264, 559-577, 2003.
32. L.I. Manevitch, **O. Gendelman**, A. I. Musienko, A. F. Vakakis and L.Bergman, Dynamic Interaction of a Semi-infinite Linear Chain of Coupled Oscillators with a Strongly Nonlinear End Attachment, *Physica D*, v.178, 1-18, 2003
33. A. V. Savin and **O. V. Gendelman**, Heat conduction in one-dimensional lattices with on-site potential, *Physical Review E,* v.67, 041205, 2003
34. **O.V. Gendelman**, L.I. Manevitch and O.L. Manevitch, Solitonic Mechanism of Structural Transition in Polymer-Clay Nanocomposites, *Journal of Chemical Physics*, v.119, 1066-1069, 2003
35. **O. Gendelman**, L. I. Manevitch, A. F. Vakakis and L. Bergman, A Degenerate Bifurcation Structure in the Dynamics of Coupled Oscillators with Essential Stiffness Nonlinearities, *Nonlinear Dynamics*, v.33, 1-10, 2003
36. A F. Vakakis, D. M McFarland, L. Bergman, L I. Manevitch and **O. Gendelman**, Isolated Resonance Captures and Resonance Capture Cascades Leading to Single- or Multi-Mode Passive Energy Pumping in Damped Coupled Oscillators, *Journal of Vibration and Acoustics – Transactions of the ASME*, v. 126, 235-244, 2004
37. **O.V. Gendelman** and A.V.Savin, Heat Conduction in a One-Dimensional chain of Hard Discs with Substrate Potential, *Physical Review Letters*, v.92, 074301, 2004
38. **O.V. Gendelman, Bifurcations of Nonlinear Normal Modes of Linear Oscillator with Strongly Nonlinear Damped Attachment, *Nonlinear Dynamics*, v.37, 115-128, 2004.**
39. A.A.Berlin., **O.V. Gendelman**, M.A. Mazo, L.I. Manevitch, Thermal Expansion Coefficient in Simple Models of Condensed Media, *Doklady: Physical Chemistry*, v.397, 187-190, 2004
40. **O.V. Gendelman** and C.-H. Lamarque, Dynamics of Linear Oscillator Coupled to Strongly Nonlinear Attachment with Multiple States of Equilibrium, *Chaos, Solitons and Fractals*, v.24, 501-509, 2005

41. E. Bormashenko, R. Pogreb, O. Stanevsky, Y. Bormashenko, T. Stein, V.-Z. Gaisin, R. Cohen and **O.V. Gendelman**, Mesoscopic Patterning in Thin Polymer Films Formed under the Fast Dip-Coating Process, *Macromolecular Materials and Engineering*, v.290, 114-121, 2005
42. E. Bormashenko, R. Pogreb, O. Stanevsky, Y. Biton, Y. Bormashenko, Y. Socol and **O. Gendelman**, Self-Assembled Honeycomb Polycarbonate Films Deposited on Polymer Piezoelectric Substrates and their Applications, *Polymers for Advanced Technologies*, v.16, 209-304, 2005
43. **O.V. Gendelman**, D.V. Gorlov, L.I. Manevitch and A.I. Musienko, Dynamics of coupled linear and essentially nonlinear oscillator with substantially different masses, *Journal of Sound and Vibration*, v.286, 1-19, 2005
44. **O.V. Gendelman** and A.V. Savin, Reply to Comment on "Normal heat conductivity of the one-dimensional lattice with periodic potential of nearest-neighbor interaction", by L.Yang, B.B.Hu, *Physical Review Lett*ers, v.94, 219405 Jun 3, 2005
45. E. Bormashenko, R. Pogreb, O. Stanevsky, Y. Bormashenko, S. Tamir, R. Cohen, M. Nunberg, V.-Z. Gaisin, M. Gorelik and **O.V. Gendelman**, Mesoscopic and submicroscopic patterning in thin polymer films: impact of the solvent, *Materials Letters*, v. 59, 2461-2464, 2005
46. E. Bormashenko, R. Pogreb, O. Stanevsky, Y. Bormashenko and **O. Gendelman**, Formation of honeycomb patterns in evaporated polymer solutions: Influence of the molecular weight, *Materials Letters*, v. 59, 3553 – 3557, 2005
47. E. Bormashenko, R. Pogreb, O. Stanevsky, Y. Bormashenko, T. Stein and **O.V. Gendelman**, Mesoscopic patterning in evaporated polymer solutions: new experimental data and physical mechanisms, *Langmuir*, v.21, 9604-9609, 2005
48. **O.V. Gendelman, Modeling of Inelastic Impacts with the Help of Smooth Functions, *Chaos, Solitons and Fractals,* v. 28, 522–526, 2006**
49. **O.V. Gendelman, Degenerate Bifurcation Scenarios in the Dynamics of Coupled Oscillators with Symmetric Nonlinearities, *International Journal of Bifurcations and Chaos,* v. 16, 169-178, 2006**

50. E. Bormashenko, R. Pogreb, O. Stanevsky, Y. Bormashenko, T. Stein, R. Cohen, Sh. Reis and **O.V. Gendelman**, Mechanisms of mesoscopic patterning in evaporated polymer films deposited on tilted and vertical substrates, *Journal of Materials Science,* v.41, 455-461, 2006
51. E. Bormashenko, R. Pogreb, A. Musin, O. Stanevsky, Y. Bormashenko, G. Whyman, **O. Gendelman** and Z. Barkay, Self-assembly in Evaporated Polymer Solutions: Influence of the Solution Concentration, *Journal of Colloid and Interface Science,* v.297, 534-540, 2006
52. M. Shusser and **O.V. Gendelman**, Stability of an Evaporating Thin Polymer Film, *International Communications in Heat and Mass Transfer,* v.33, 564-570, 2006
53. **O.V. Gendelman**, E. Gourdon and C.-H. Lamarque, Quasiperiodic Energy Pumping in Coupled Oscillators under Periodic Forcing, *Journal of Sound and Vibrations*, v.294, 651-662, 2006
54. **O.V. Gendelman**, M. Shapiro, Y. Estrin, R.J. Hellmig and S. Lekhtmakher, Grain size distribution and heat conductivity of copper processed by equal channel angular pressing, *Materials Science and Engineering A,* v.434, 88-94, 2006
55. D. Meimukhin and **O.V. Gendelman**, Response Regimes of Integrable Damped Strongly Nonlinear Oscillator under Impact Periodic Forcing, *Chaos, Solitons and Fractals,* v.32, 405-414, 2007
56. A. Arinstein, M. Burman, **O. Gendelman**, and E. Zussman, Effect of supramolecular structure on polymer nanofibre elasticity, *Nature Nanotechnology*, v.2, 59-62, 2007
57. P. N. Panagopoulos, **O. Gendelman** and A. F. Vakakis, Robustness of Nonlinear Targeted Energy Transfer in Coupled Oscillators to Changes of Initial Conditions, *Nonlinear Dynamics*, v.47, 377-387, 2007
58. S. Tsakiris, P.N. Panagopoulos, G. Kerschen, **O. Gendelman**, A.F. Vakakis and L.A. Bergman, Complex Dynamics and Targeted Energy Transfer in Linear Oscillators Coupled to Multi-degree-of-Freedom Essentially Nonlinear Attachments, *Nonlinear Dynamics*, v.48, 285-318, 2007

59. **O.V. Gendelman** and Y. Starosvetsky, Quasiperiodic Response Regimes of Linear Oscillator Coupled to Nonlinear Energy Sink Under Periodic Forcing, *Journal of Applied Mechanics- Transactions of the ASME*, v.74, 325-331, 2007
60. E. Bormashenko, A. Musin, Y. Bormashenko, G. Whyman, R. Pogreb and **O.V. Gendelman**, Formation of Films on Water Droplets Floating on a Polymer Solution Surface**,** *Macromolecular Chemistry and Physics*, v. 208, 702-709, 2007
61. E. Bormashenko, A. Musin, R. Pogreb, Y. Bormashenko and **O. Gendelman**, Self-assembled patterns obtained with evaporated polymer solutions and pre-stretched polymer substrates, *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, v. 303, 253–256, 2007
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Invited review papers

1. **O.V. Gendelman, Targeted Energy Transfer in Systems with external and self – excitation, *Proceedings of the Institution of Mechanical Engineers, Part C, Journal of Mechanical Engineering Science*, invited review, v. 225, 2007-2043, 2011 – Paper awarded Water Arbitration Prize, 201**2

Books

1. A.F. Vakakis, O.V. Gendelman, G. Kerschen, L.A. Bergman, M.D.McFarland and Y.S. Lee, Nonlinear Targeted Energy Transfer in Mechanical and Structural Systems, v.I and v.II, Springer, 2009.
2. L.I. Manevitch and O.V. Gendelman, Tractable models in Solid Mechanics, Springer, 2011
3. L.I.Manevitch and O.V.Gendelman, Solvable models in Mechanics of Solids, Regular and Chaotic Dynamics, Moscow, 2016 (in Russian).

Books (editor).

1. Problems of Nonlinear Mechanics and Physics of Materials, series: Advanced Structured Materials, v.94, eds: I.V.Andrianov, A.I.Manevich, Y.V.Mikhlin and **O.V.Gendelman**, Springer, 2019.

Special Journal Issues (editor)

1. From macro- to nano- scales in Mechanics and Physics: new methods of analysis and control, new phenomena, new experimental discoveries, eds. Y.V.Mikhlin, F. Pellicano and **O.V.Gendelman**, *Nonlinear Dynamics*, v.93, issue 1, 2018.
2. Nonlinear energy transfer in dynamical and acoustical Systems, eds. **O.V.Gendelman** and A.F.Vakakis, *Philosophical Transactions of the Royal Society A*, v.376, issue 2127, 2018.

CONFERENCES

Plenary, keynote or invited talks

1. O.V.Gendelman, L.I.Manevitch, O.L. Manevitch, Melt Intercalation in Polymer-Clay Nanocomposites, *Proceedings of the Second International Conference on Mathematical Modeling and Computer Simulation of Metal Technologies***,** Ariel, Israel, 2002, pp. 4.5-4.11

2. O.V.Gendelman Peculiarities of Heat Transfer in Low – Dimensional Systems, *Proceedings of the Third International Conference on Mathematical Modeling and Computer Simulation of Material Technologies***,** Ariel, Israel, 2004, pp.1-12 – 1-21

3. O.V.Gendelman, Dynamics of Strongly Nonlinear Coupled Oscillators Described by Transient Nonlinear Normal Modes, *2nd International Conference on Nonlinear Normal Modes and Localization in Vibrating Systems*, June 19-23, 2006, Samos, Greece – **keynote lecture**

4. O.V. Gendelman, M. Shapiro, Y. Estrin, and R.J. Hellmig, Grain size distribution and heat conductivity of copper processed by equal channel angular pressing, *Proceedings of the Fourth International Conference on Mathematical Modeling*

*and Computer Simulation of Material Technologies***,** Ariel, Israel, 2006, 4-8 – 4-19

5. O.V.Gendelman, Targeted Energy Transfer in a system with soft nonlinearity, *ENOC-6, Sixth EUROMECH Nonlinear Dynamics Conference*, June 30 – July 4, 2008, St. Petersburg, Russia
6. O.V.Gendelman and Y. Starosvetsky, Dynamics of Strongly Nonlinear Oscillators described by transient Nonlinear Normal Modes, *NPPS-2008, International Conference on Nonlinear Phenomena in Polymer Solids and Low – Dimensional Systems*, July 7 – 10, 2008, Moscow, Russia
7. O.V.Gendelman and A.V.Savin, Non-Fourier Heat Transfer in Microscopic Models of Dielectrics, *Proceedings of the Fifth International Conference on Mathematical Modeling and Computer Simulation of Material Technologies***,** Ariel, Israel, 2008
8. O.V.Gendelman, Non-Fourier Heat Transfer in Microscopic Models of Dielectrics, *2nd Workshop on Computations in Nanotechnology*, Technion, Israel, 21-23 April, 2009
9. O.V.Gendelman, Non-Fourier Heat Transfer in Microscopic Models of Dielectrics, *Workshop on Non-Local Effects in Pattern-Forming Systems*, Technion, Israel, June 16-22, 2009
10. O.V.Gendelman, Global Bifurcations in Systems Including Nonlinear Energy Sinks, *10^{th} International Conference on Dynamical Systems: Theory and Applications*, Lodz, Poland, December 6-11, 2009 – **plenary lecture**
11. O.V.Gendelman, Bifurcations of Attractors in Forced Systems with Nonlinear Energy Sinks: Mass Asymmetry, *IUTAM Symposium on Nonlinear Dynamics in Advanced Technologies and Engineering Design*, Aberdeen, 2010
12. O.V.Gendelman, T.Bar, Bifurcations of Self – Excitation Regimes in Oscillatory Systems with Nonlinear Energy Sink, DINCON 10 – 9^{th} Brazilian Conference on Dynamics, Control and their Applications, Sao Paulo, June 07-11, 2010 – **keynote lecture**

13. O.V.Gendelman, K.Edelman, Dynamics of Self – Excited Oscillators with Neutral Time Delay Coupling, 7th EUROMECH Nonlinear Dynamics Conference, Rome, 2011
14. O.V.Gendelman, Attractors of Forced Systems with Nonlinear Energy Sinks, 2nd International Symposium on Rare Attractors and Rare Phenomena in Nonlinear Dynamics, Riga-Jurmala, Latvia, 16-20 May, 2011
15. O.V.Gendelman, K.Edelman, Dynamics of Self – Excited Oscillators with Neutral Time Delay Coupling, International Conference on Vibration Problems, Prague, September 4-9, 2011
16. O.V.Gendelman, Systems with Rotational Nonlinear Energy Sink, International Conference on Vibration Problems, Prague, September 4-9, 2011
17. O.V.Gendelman, Exact Solutions for Discrete Breathers in Forced – Damped Chain, The 4th International Conference "Nonlinear Dynamics – 2013", June 19-22, 2013, Sevastopol, Ukraine – **keynote lecture**
18. O.V.Gendelman, Deformation Mechanisms in Glasses, *Eight International Conference on Mathematical Modeling and Computer Simulation of Material Technologies***,** University of Ariel, Israel, 2014 – **plenary lecture**.
19. O.V.Gendelman, Heat conductivity in one dimension: microstructure versus hydrodynamics, *APM 2017*, St.-Petersburg – **plenary lecture**.
20. O.V.Gendelman, Transient phenomena in vibro-impact and other strongly nonlinear systems, *4th International Conference on vibro-impact-systems and systems with non-smooth interactions*, Kassel, Germany, 30 July - 3 August 2018 **- keynote lecture**
21. O.V.Gendelman, Flat bands and compact breathers in nonlinear lattices, *APM 2018*, St.-Petersburg – **plenary lecture**.
22. O.V.Gendelman, Kapiza resistance in benchmark one-dimensional models of heat conductivity, *APM 2019*, St. Petersburg – **plenary lecture**
23. O.V.Gendelman, Escape dynamics in harmonically forced systems, *NNM2019*, Marseille – invited lecture

24. O.V.Gendelman, Intermodal Targeted Energy Transfer, *NNM21*, Ascona, Switzerland – invited lecture
25. O.V.Gendelman, Engineering Nonlinearity, ENOC2022, Lyon – **plenary lecture**.
26. O.V.Gendelman, Intermodal Targeted Energy Transfer, Applied Nonlinear Dynamics, Vibration and Control, International Online Forum, City University of Hong Kong, 2022 - invited lecture.
27. O.V.Gendelman, Intermodal Targeted Energy Transfer, IUTAM Symposium on Nonlinear dynamics for design of mechanical systems across different length/time scales, Tsukuba, Japan, 2023 – invited lecture.

SPECIAL PROFESSIONAL ACTIVITIES

Member of Organizing and Scientific Committees:

- 2nd International Conference on Nonlinear Normal Modes and Localization in Vibrating Systems, June 19-23, 2006, Samos, Greece
- NPPS-2008, International Conference on Nonlinear Phenomena in Polymer Solids and Low – Dimensional Systems, July 7 – 10, 2008, Moscow, Russia
- 3rd International Conference on Nonlinear Normal Modes and Localization in Vibrating Systems, September 26 - 30, 2009, Roma, Italy
- 3rd International Conference "Nonlinear Dynamics – 2010", September 21-24, Kharkov, Ukraine
- Permanent Committee, International Conference on Vibration Problems, since 2011
- International Conference on Vibration Problems, Prague, September 4-9, 2011
- 2nd International Symposium "Rare Attractors and Rare Phenomena in Nonlinear Dynamics RA'11", May 16 - 20, 2011, Riga - Jurmala, Latvia

- **Chairman of Organizing and Scientific Committees, 4th International Conference on Nonlinear Normal Modes and Localization in Vibrating Systems, July 1-5, 2012, Faculty of Mechanical Engineering, Technion, Israel (40 participants from 11 countries)**
- The 4th International Conference "Nonlinear Dynamics – 2013", June 19-22, 2013, Sevastopol, Ukraine
- Steering Committee, International Conferences on Nonlinear Normal Modes and Localization, since 2012
- 3rd International Symposium "Rare Attractors and Rare Phenomena in Nonlinear Dynamics RA14, 2014, Riga - Jurmala, Latvia
- The 5th International conference on Nonlinear Normal Modes and Localization in Mechanics and Physics, Istanbul, Turkey, 2014
- The 6th International conference on Nonlinear Normal Modes and Localization in Mechanics and Physics, Liege, Belgium,, 2016
- EURODYN-10 conference, Rome, Italy, 2017
- The 4th International Conference on vibro-impact-systems and systems with non-smooth interactions, Kassel, Germany, 30 July - 3 August 2018
- European Nonlinear Oscillations Conference Committee (ENOCC), 2021-2026
- **Organizer of CISM-AIMETA Advanced School on Exploiting the Use of Strong Nonlinearity in Dynamics and Acoustics, CC2206, 2022**

Organizer of Sessions and Symposia

- 7th EUROMECH Solid Mechanics Conference, Lisbon, September 7-11, 2009, Mini – Symposium: Nonlinear Localization and Targeted Energy Transfer in Dynamical Systems and Engineering
- 7th EUROMECH Nonlinear Dynamics Conference, Roma, Italy, 2011, Mini – Symposium 15: Energy transfer in Nonlinear Systems,
- International Conference on Vibration Problems, Section: Asymptotic Methods, Prague, 2011

- 8th EUROMECH Nonlinear Dynamics Conference, Vienna, Austria, 2014, Mini – Symposium: Energy transfer in Nonlinear Systems,

Teaching at special advanced professional courses by special invitations.

1. Advanced Nonlinear Strategies for Vibration Mitigation and System Identification, CISM, Udine, Italy, June 16-20, 2008
2. SICON – Marie Curie Training Course, event TC-4, Lyon, France, March 28-April 3, 2009
3. Modal Analysis of Nonlinear Mechanical Systems, CISM, Udine, Italy, June 25-29, 2012

Consultancy

1. Weizmann Institute of Science, Department of Chemical Physics.
2. Israel Institute of Metals, Technion.

Reviewing for:

Physical Review Letters, Physical Review E, Applied Physics Letters, Nonlinear Dynamics, ASME Journal of Applied Mechanics, ASME Journal of Computational and Nonlinear Dynamics, Journal of Sound and Vibration, Journal of Vibration and Control, ASME Journal of Vibration and Acoustics, International Journal of Solids and Structures, Engineering Structures, International Journal of Impact Engineering, Meccanica, Europhysics Letters, International Journal of Non-Linear Mechanics, Journal of Physical Chemistry, Physica Status Solidi, Israel Journal of Chemistry, Entropy, Mathematical Reviews (AMS), Mechanic Research Communications, European Journal of Mechanics, Industrial & Engineering Chemistry Research, AIAA Journal , ASME and EUROMECH conferences, GIF, ISF