February 20, 2024

CURRICULUM VITAE: REUVEN SEGEV

PERSONAL DETAILS

Date and place of birth:	June 22, 1954, Tel-Aviv, Israel
Marital status:	Married, 4 children
Citizenship:	Israeli
E-mail address:	rsegev@post.bgu.ac.il
Web page:	www.bgu.ac.il/∼rsegev
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Home Address:	16 Sitvanit Street, Beer-Sheva 8484823, Israel, Phone: +972 52 8824663

EMPLOYMENT HISTORY

2022 – PRESENT, Emeritus Professor, Department of Mechanical Engineering, Ben-Gurion University.

2004 – 2022, Professor, Holder of the H. Greenhill Chair in Theoretical and Applied Mechanics, Department of Mechanical Engineering, Ben-Gurion University.

2008 – 2009, Visiting Scholar, Department of Mechanical and Aerospace Engineering, University of California, San-Diego, on sabbatical leave from Ben-Gurion University.

2003 – 2008, Chairman, Department of Mechanical Engineering, Ben-Gurion University.

1991 – 2004, Associate Professor, Department of Mechanical Engineering, Ben-Gurion University.

1995 – 1996, Sabbatical leave from Ben-Gurion University at the University of Calgary.

1987 – 1988, Fellow by Courtesy, Rational Mechanics, Johns Hopkins University (on sabbatical from Ben-Gurion University).

1986 – 1991, Senior Lecturer (tenured since 1987), Department of Mechanical Engineering, Ben-Gurion University.

1981 – 1986, Lecturer, Department of Mechanical Engineering, Ben-Gurion University.

EDUCATION

Bachelor of Science, 1972 – 1976, Ben-Gurion University, Department of Mechanical Engineering (with distinction).

Master of Science, 1976 – 1978, Ben-Gurion University, Department of Mechanical Engineering, Advisor: Prof. S. Rautu, Thesis: "Dynamic Instability of Structures by Finite Elements".

Doctor of Philosophy, 1978 – 1981, The University of Calgary, Department of Mechanical Engineering, Advisor: Prof. M. Epstein, Thesis: "Differentiable Manifolds and Some Basic Notions of Continuum Mechanics".

POSITIONS IN ACADEMIC ADMINISTRATION

2023 – present, Academic Head of the Univeristy Center for the External Studies.

2019 – 2020, Head of the Univeristy's Unit for the Advancement of Quality Teaching and Learning.

2014 – 2017, Associate Dean for Teaching, Faculty of Engineering Sciences, Ben-Gurion Univesrity.

2014 – 2016 Member of Ben-Gurion University Appointments and Promotions Committee.

2010 – 2016, A member of the Ben-Gurion University Executive Committee (the representative of the Faculty of Engineering Sciences).

2009 – 2013, 2016 – 2018, A member of the University medical promotions committee (the Senate's representative).

2016 – 2020, A member of the promotions committee of the Institutes for Desert Research at BGU (the Senate's representative).

2003 – 2008, Chairman, Department of Mechanical Engineering, Ben-Gurion University.

2006 – 2008, A member of the promotions committee of the Faculty of Health Sciences (the Senate's representative).

1999 – 2000, Vice-Chairman, Department of Mechanical Engineering Ben-Gurion University.

1992 – 1995, Chairman of the Paul Ivanier Center for Robotics Research and Production Management, Ben-Gurion University

1994 – 1995, Chairman of the undergraduate studies committee, Department of Mechanical Engineering, Ben-Gurion University.

1998, Chairman of the graduate studies committee, Department of Mechanical Engineering, Ben-Gurion University.

1991 – present, Member of the admission committee, Medical School, Ben-Gurion University.

RESEARCH FELLOWSHIPS AND AWARDS

2004 – present, H. Greenhill Chair Professor in Theoretical and Applied Mechanics.

Summer 1993, Visiting Professor, University of Pisa, Visiting Scientists Program, Italian National Research Council.

Summer 1990, Visiting Professor, University of Pisa, Visiting Scientists Program, Italian National Research Council.

1986 – 1988, Fellow of the Bath-Sheva de Rothchild Foundation for the Advancement of Science in Israel, $10000.

OTHER PROFESSIONAL FUNCTIONS

2019 – present, President of the Israel Society for Theoretical and Applied Mechanics.

2020 – present, Member of the editorial board, Applied Mathematics and Mechanics.

2016 – present, Member of the editorial board, Journal of Geometric Mechanics.

2004 – 2022, Chair of the professional committee of the Israeli Council for Higher Education for the accreditation of colleges applying for a B.Sc. and M.Sc. degrees in Mechanical Engineering.

Chair and member of Professional Review Committees, Israel Science Foundations.

Chair and member of the Professional Committee for Engineering, Pazy Foundation.

Reviewer: Mathematical Reviews, Journal of Elasticity, Mathematics and Mechanics of Solids, International Journal of Engineering Sciences, International Journal of Solids and Structures, Journal of Mathematical Physics, Archive for Rational Mechanics and Analysis, Journal of Geometric Mechanics, Journal of Mechanics of Materials and Structures, Proceedings of the Royal Society of London A, Journal of Applied Mathematics and Physics (ZAMP), Chemical Engineering Communications, Physica A, Bioinspiration and Biomimetics.

Member of the Editorial Committee of the ESDA08 (European branch of the ASME) conference, Technion, June 2008.

Member of the Organizing Committee, 30th Israeli Conference on Mechanical Engineering, organized by the Department of Mechanical Engineering at B.G.U., May 2005.

Member of the Editorial Committee, 29th Israeli Conference on Mechanics Engineering, Technion, Haifa, 2003.

Member of the scientific committee, Current Ideas in Mechanics, Thermodynamics and Related Fields Conference, Berlin, September 2001.

1999, Organizer and member of the scientific committee, Current Ideas in Mechanics and Related Fields Conference, Jerusalem, August 1999.

PROFESSIONAL CONSULTING

1992, Baran, Makdimor, Advance Warning System for Drivers

1994, Mazor Lawyers, Dynamic Analyses of Crane.

1994 – 1997, Bromine Compounds, Vibrations of Structures

1998, Makhteshim, Vibrations of Structures

1998 – 1999, Dead Sea Works, Self Excited Vibrations

2002 – 2003, Dead Sea Works, Vibrations in Power Plant

2005, Dead Sea Works, Failure of Fluid Bed Drier

MEMBERSHIP IN SCIENTIFIC SOCIETIES

2019 – present, President of the Israel Society for Theoretical and Applied Mechanics, and a representative of Israel in IUTAM.

2023 – present, Member of the Governing Committee of the Society for Natural Philosophy.

1988 – present, The Society for Natural Philosophy.

1998 – present, The International Society of the Interaction of Mechanics and Mathematics.

2008 – present, The Society for Engineering Science.

COURSES TAUGHT

Statics	first year undergraduate	G.B.U.
Dynamics	second year undergraduate	B.G.U.
Strength of Materials I	second year undergraduate	B.G.U.
Strength of Materials II	third year undergraduate	B.G.U.
Theory of Vibrations	third year undergraduate	B.G.U.
Introduction to Continuum Mechanics	third year undergraduate	B.G.U.
Elasticity and Plasticity	fourth year undergraduate	B.G.U.
Kinematics and Dynamics of Robots	fourth year undergraduate	B.G.U.
Robotics	graduate course	Johns Hopkins U.
Continuum Mechanics	graduate course	B.G.U.
Finite Elements	graduate course	B.G.U.
Analytical Mechanics	graduate course	B.G.U.
Tensor Analysis	graduate course	B.G.U.
Functional Analysis to Mechanical Eng.	graduate course	B.G.U
Mathematical Methods in Optimization	graduate course	B.G.U.
Physics to medical students	Medical School	B.G.U.
Stochastic Processes	third year Communication. Eng.	B.G.U.

RESEARCH STUDENTS

Y. Cohen, M.Sc. thesis: "An Analysis of the Loads and Stresses for the Armored Personnel Carrier's Automatic Transmission Housing", 1987.

G. deBotton, M.Sc. thesis: "The Representation of a Force System by Stresses", 1989.

M. Arad, M.Sc. thesis: "Application of the Nonconforming Taylor Discretization Method to Two Dimensional Problems in Elasticity Theory", 1992.

E. Taragan, M.Sc. thesis: "Stresses in Mixture Theory", 1992.

E. Kochavi, Ph.D. thesis: "Nonconforming Taylor Discretization Method for Numerical Solution of Field Problems, 1994.

Y. Biton, M.Sc. thesis: "Processing of Laser Scanner Data" (with Eitan Gurewitch), 2000.

B. Greenberg, M.Sc. thesis: "Orientation Control of a Rigid Spacecraft" (with Amit Ailon), 2001.

G. Rodnay, Ph.D. thesis: "Cauchy's Flux Theorem in Light of Whitney's Geometric Integration Theory", 2002.

A. Lewinstein, M.Sc. thesis: "Control of an Autonomous Vehicle" (with Amit Ailon), 2002.

E. Nizri, Ph.D. thesis: "Data Structures for the Representation of the Dynamics of Mechanisms", 2005.

L. Falach, M.Sc. thesis: "Optimal Stress and Load Capacity of a Structure: Theory, Algorithms and Applications", 2008.

Y. Levinson, M.Sc. thesis: "On the Kinematics of the Octopus's Arm", 2008.

L. Falach, Ph.D. thesis: "Applications of Geometric Measure Theory in Continuum Mechanics: The Configuration Space, Principle of Virtual Power and Cauchy's Stress Theory for Rough Bodies", 2013.

D. Kim, M.Sc. thesis: "The Mechanics of an Octopus's Arm: Forces and Stresses in the Fiber Bundles", 2015.

RESEARCH GRANTS

2006 – 2009, B.G.U.-N.R.C.N VATAT grant with Prof. V. Portman, "Advanced Solutions for Accurate Machine Tools and Measurement Systems", NIS70,000 annual budget.

2003 – 2004, Israel Ministry of Education, "Engineering Science: Robotic Systems and Analogies Book", NIS349,800.

2001 – 2003, Israel Ministry of Education, "Engineering Science for High-Schools", NIS400,000.

2001 – 2003, Ort, "Increasing Creativity in High School Technological Studies", NIS125,000.

1997 – 2002, Israel Ministry of Defense-Mafat, H. Guterman, Y. Edan and R. Segev "Autonomous Dirt-Road Vehicle", about $150,000 annually.

1997, Israel Ministry of Defense-Mafat, R. Segev, Y. Edan and H. Guterman, "Autonomous Dirt-Road Vehicle", $100,000.

LIST OF PUBLICATIONS

BOOKS

[1] R. Segev. *Foundations of Geometric Continuum Mechanics: Geometry and Duality in Continuum Mechanics*. Springer/Birkhauser, 2023.

[2] R. Segev and M. Epstein, editors. *Geometric Continuum Mechanics*. Advances in Continuum Mechanics. Springer/Birkhäuser Basel, 2020.

[3] R. Segev. *CmoMillon:* (Hebrew for "KindOfDictionary"): *A Phrase Book for the Jargon of Engineering*. Ort (in Hebrew), 2005.

[4] R. Segev. *Dynamics of Particles and Rigid Bodies*. Published by the author, 1991. A textbook in Hebrew.

CHAPTERS IN BOOKS AND COLLECTIVE VOLUMES

[1] R. Segev. Notes on Global Stress and Hyper-Stress Theories. In R. Segev and M. Epstein, editors, *Geometric Continuum Mechanics*, Advances in Mechanics and Mathematics, pages 77–142. Springer, 2020.

[2] J. Sniatycki and R. Segev. De Donder Construction for Higher Jets. In R. Segev and M. Epstein, editors, *Geometric Continuum Mechanics*, Advances in Mechanics and Mathematics, pages 185–219. Springer, 2020.

[3] M. Epstein and R. Segev. Regular and Singular Dislocations. In R. Segev and M. Epstein, editors, *Geometric Continuum Mechanics*, Advances in Mechanics and Mathematics, pages 223–265. Springer, 2020.

[4] M. Epstein and R. Segev. Differential geometry and continuum mechanics. volume 137 of *Springer Proceedings in Mathematics and Statistics*, chapter 7: On the geometry and kinematics of smoothly distributed and singular defects, pages 203–234. Springer, 2015.

[5] R. Segev. Optimization for the balance equations. in Mathematical Modeling of Bodies with Complicated Bulk and Boundary Behavior, M. Silhavy, ed., *Quaderni di Matematica*, **20**, 197–216, 2007.

[6] R. Segev. Fluxes and flux-conjugate stresses. in *Advances in Multifield Theories of Continua with Microstructure*, G. Capriz and P. Mariano, eds., Birkhouser, Boston, Chapter 7, 2003.

[7] R. Segev and M. Epstein. On theories of growing bodies. in *Contemporary Research in the Mechanics and Mathematics of Materials*, R.C. Batra and M.F. Beatty eds., 1996.

[8] R. Segev. On the definition of forces in continuum mechanics. in Mathematical Theory of Dynamical Systems and Microphysics, A. Blaquiere and G. Leitmann eds., Academic Press, 341–357, 1984.

[9] R. Segev and M. Epstein. An invariant theory of stress and equilibrium. in *Mathematical Foundations of Elasticity* by J. Marsden and T.J. Hughes, pp. 169–175, Prentice-Hall, 1983.

ARTICLES IN SCIENTIFIC JOURNALS

[1] Vladimir Goldshtein and Reuven Segev. Notes on smooth and singular volumetric growth. *Mechanics of Materials*, 191:104950, 2024.

[2] V. Goldshtein, P.M. Mariano, D. Mucci, and R. Segev. Continuum kinematics with incompatible-compatible decomposition. *Philosophical Transactions of the Royal Society of London A*, 381:20220372, 2023. https://doi.org/10.1098/rsta.2022.0372.

[3] R. Segev and M. Epstein. Proto-Galilean dynamics of a particle and a continuous body. *Journal of Elasticity*, 2022. Special issue in memory of J. Ericksen, https://doi.org/10.1007/s10659-022-09929-w.

[4] O. Elmackias, T. Zaretzky, and R. Segev. Optimization of robot gripping forces and worst case loading. *Applications in Engineering Science*, 7:100045, 2021. https://doi.org/10.1016/j.apples.2021.100045.

[5] R. Segev. Notes on stress measures on bodies with corners. *Mechanics Research Communications*, 104:103497, March 2020.

[6] M. Epstein and R. Segev. Vlasov's beam paradigm and multivector Grassmann statics. *Mathematics and Mechanics of Solids*, 2019. DOI: 10.1177/1081286519839182.

[7] R. Segev and J. Sniatycki. Hyper-stresses in k-jet field theories. *Journal of Elasticity*, 135:457–483, 2019. Special volume in memory of Walter Noll, https://doi.org/10.1007/s10659-018-9691-4.

[8] R. Segev and J. Sniatycki. On jets, almost symmetric tensors, and traction hyper-stresses. *Mathematics and Mechanics of Complex Systems*, 6(2), 2018. dx.doi.org/10.2140/memocs.2018.6.101.

[9] R. Segev. Geometric analysis of hyper-stresses. *International Journal of Engineering Science*, 120:100–118, 2017.

[10] R. Kupferman, E. Olami, and R. Segev. Stress theory for classical fields. *Mathematics and Mechanics of Solids*, 25:1472–1503, 2017. DOI: 10.1177/1081286517723697.

[11] R. Kupferman, E. Olami, and R. Segev. Continuum dynamics on manifolds: Applications to elasticity of residually stresses bodies. *Journal of Elasticity*, 126:61–84, 2017. DOI 10.1007/s10659-016-9617-y.

[12] R. Segev. Continuum mechanics, stresses, currents and electrodynamics. *Philosophical Transactions of the Royal Society of London A*, 374:20150174, 2016. DOI: 10.1098/rsta.2015.0174.

[13] L. Falach and R. Segev. On the role of sharp chains in the transport theorem. *Continuum Mechanics and Thermodynamics*, 28:539–559, 2016.

[14] D. Kim and R. Segev. Various issues raised by the mechanics of an octopus's arm. *Mathematics and Mechanics of Solids*, 22:1588–1605, 2017. DOI: 10.1177/1081286515599437.

[15] S. Federico, A. Grillo, and R. Segev. Material description of fluxes in terms of differential forms. *Continuum Mechanics and Thermodynamics*, 28:379–390, 2016. DOI 10.1007/s00161-015-0437-2.

[16] L. Falach and R. Segev. Reynolds transport theorem for smooth deformations of currents on manifolds. *Mathematics and Mechanics of Solids*, 20:770–786, 2014. Special volume for the occasion of R. Ogden's 70th anniversary, DOI: 10.1177/1081286514551503.

[17] M. Epstein and R. Segev. Geometric theory of smooth and singular defects. *International Journal of Non-Linear Mechanics*, 2014. DOI: 10.1016/j.ijnonlinmec.2014.02.006.

[18] L. Falach and R. Segev. The configuration space and principle of virtual power for rough bodies. *Mathematics and Mechanics of Solids*, 20:1049–1072, 2015. DOI: 10.1177/1081286513514244.

[19] R. Segev and J. Goddard. Radiative transfer and flux theory. *Mathematics and Mechanics of Solids*, 20:327–344, 2016.

[20] R. Segev. Notes on metric independent analysis of classical fields. *Mathematical Methods in the Applied Sciences*, 36:497–566, 2013. DOI: 10.1002/mma.2610.

[21] M. Epstein and R. Segev. Geometric aspects of singular dislocations. *Mathematics and Mechanics of Solids*, 19:335–347, 2014. DOI: 10.1177/1081286512465222.

[22] R. Segev and L. Falach. The codivergence of vector valued currents. *Discrete and Continuous Dynamical Systems, Series B*, 17:687–698, 2012.

[23] R. Segev and L. Falach. Velocities, stresses and vector bundle valued chains. *Journal of Elasticity*, 105, Special volume in memory of Donald Carlson:187–206, 2011. DOI: 10.1007/s10659-011-9316-7.

[24] R. Segev and L. Falach. A note on limit analysis. *Mathematics and Mechanics of Solids*, 15:854–869, 2010.

[25] Y. Levinson and R. Segev. On the kinematics of the octopus's arm. *ASME Journal of Mechanisms and Robotics*, 2:011008, 2010.

[26] L. Falach and R. Segev. Load capacity ratios for structures. *Computer Methods in Applied Mechanics and Engineering*, 199:77–93, 2009.

[27] R. Segev. Load capacity of bodies. *International Journal of Non-Linear Mechanics*, 42 (A special volume in memory of R. Rivlin):250–257, 2007.

[28] R. Peretz and R. Segev. Bounds on the trace mapping of LD-fields. *Computers and Mathematics with Applications*, 53:665–684, 2007.

[29] R. Segev. Generalized stress concentration factors. *Mathematics and Mechanics of Solids*, 11:479–493, 2006.

[30] R. Segev and G. DeBotton. On the norms of force functionals and stress representations. *Mathematics and Mechanics of Solids*, 11:229–250, 2005.

[31] R. Segev. Generalized stress concentration factors for equilibrated forces and stresses. *Journal of Elasticity*, 81:293–315, 2005.

[32] A. Ailon, R. Segev, and S. Arogeti. A simple velocity-free controller for attitude regulation of a spacecraft with time-delayed input functions. *IEEE Transactions on Automatic Control*, 49:125–130, 2004.

[33] G. Rodnay and R. Segev. Cauchy's flux theorem in light of geometric integration theory. *Journal of Elasticity*, 71 (a special volume in memory of C. Truesdell):183–203, 2003.

[34] R. Segev. Metric-independent analysis of the stress-energy tensor. *Journal of Mathematical Physics*, 43:3220–3231, 2002.

[35] R. Segev and G. Rodnay. Worldlines and body points associated with an extensive property. *International Journal of Non-Linear Mechanics*, 38:1–9, 2002.

[36] R. Segev and G. Rodnay. Interactions on manifolds and the construction of material structure. *International Journal for Solids and Structures*, 38:997–1018, 2001.

[37] R. Segev. A correction of an inconsistency in my paper "Cauchy's theorem on manifolds". *Journal of Elasticity*, 63:55–59, 2001.

[38] R. Segev. The geometry of Cauchy's fluxes. *Archive for Rational Mechanics and Analysis*, 154:183–198, 2000.

[39] R. Segev. Notes on stresses for manifolds. *Rendiconti del Seminario Matematico dell' Universita e del Politecnico di Torino*, 58:199–205, 2000.

[40] R. Segev and G. Rodnay. Divergences of stresses and the principle of virtual work on manifolds. *Technische Mechanik*, 20:129–136, 2000.

[41] R. Segev and G. Rodnay. Cauchy's theorem on manifolds. *Journal of Elasticity*, 56:129–144, 1999.

[42] R. Segev and G. Rodnay. On volumetric growth and material frames. *Extracta mathematicae*, 14:191–204, 1999.

[43] M. Arad, R. Segev, and G. Ben-Dor. Accuracy increase of finite difference calculations by means of differentiation of the partial differential equations and their boundary conditions. *Computers and Structures*, 64:541–552, 1997.

[44] R. Segev. On symmetrically growing bodies. *Extracta Mathematicae*, 12:261–271, 1997.

[45] R. Segev, E. Fried, and G. deBotton. Force theory for multiphase bodies. *Journal of Geometry and Physics*, 20:371–392, 1996.

[46] R. Segev. Growing bodies and the Eshelby tensor. *Meccanica*, 31:507–518, 1996.

[47] A. Ailon and R. Segev. A stable observer-based trajectory controller for asymptotic model matching of a rigid robot. *Journal of Optimization Theory and Applications*, 87:517–538, 1995.

[48] M. Arad, R. Segev, and G. Ben-Dor. Improved finite difference method for equilibrium problems based on differentiation of the partial differential equations and boundary conditions. *International Journal for Numerical Methods in Engineering*, 38:1831–1853, 1995.

[49] R. Segev and E. Fried. Kinematics of and forces on nonmaterial interfaces. *Mathematical Models and Methods in Applied Sciences*, 5:739–753, 1995.

[50] R. Segev. A geometrical framework for the statics of materials with microstructure. *Mathematical Models and Methods in Applied Sciences*, 4:871–897, 1994.

[51] E. Kochavi, R. Segev, and Y. Yomdin. Modified algorithms for nonconforming Taylor discretization. *Computers and Structures*, 15:969–979, 1993.

[52] E. Kochavi, R. Segev, and Y. Yomdin. Numerical solution of field problems by nonconforming Taylor discretization. *Applied Mathematical Modeling*, 15:152–157, 1991.

[53] R. Segev and G. DeBotton. On the consistency conditions for force systems. *International Journal of Nonlinear Mechanics*, 26:47–59, 1991.

[54] R. Segev. On statical theories and models. *Archive for Rational Mechanics and Analysis*, 111:211–223, 1990.

[55] R. Segev and E. Taragan. Stresses in mixture theory. *International Journal of Engineering Science*, 27:1497–1506, 1989.

[56] R. Segev. Locality and continuity in constitutive theory. *Archive for Rational Mechanics and Analysis*, 101:29–37, 1988.

[57] A. Ailon and R. Segev. Driving a linear constant system by a piecewise constant control. *International Journal of Control*, 47:815–825, 1988.

[58] R. Segev. Forces and the existence of stresses in invariant continuum mechanics. *Journal of Mathematical Physics*, 27:163–170, 1986.

[59] A. Ailon and R. Segev. Comments on exact control of linear systems with multiple control. *IEEE Transactions on Automatic Control*, 31:1081–1083, 1986.

[60] R. Segev. On the existence of stresses in continuum mechanics. *Israel Journal of Technology*, 23:75–78, 1986.

[61] R. Segev and A. Ailon. A geometrical setting for the Newtonian mechanics of robots. *Journal of the Franklin Institute*, 322:173–183, 1986.

[62] R. Segev. On intensive and extensive properties. *International Journal of Mechanical Engineering Education*, 14:151–152, 1986.

[63] R. Segev and Y. Pressburger. A simple geometric formulation of statics. *International Journal of Mechanical Engineering Education*, 14:235–245, 1986.

[64] M. Epstein and R. Segev. Differentiable manifolds and the principle of virtual work in continuum mechanics. *Journal of Mathematical Physics*, 21:1243–1245, 1980.

[65] S. Rautu and R. Segev. Computation of the dynamic instability regions of structures by the finite element method. *Journal de Mecanique Appliquee*, 3:327–340, 1979.

INVITED LECTURES

R. Segev, 2023, "Analytical global continuum mechanics", 2nd International Conference on Mechanical System Dynamics (ICMSD), September 1–5, Beijing, China.

R. Segev, 2023, "Electrodynamics as a micropolar generalized continuum theory", Advanced Seminar on Micropolar Continua and Beyond, March 29–31, TU-Berlin, Germany

R. Segev, 2022, "Optimal stress fields, worst case loadings and load capacity of structures", Aeromeet2022, March 21–22, Dubai, UAE (Virtual).

R. Segev, 2022, "So, What are stresses", a Keynote Lecture at the VII Iberoamerican Meeting on Geometry, Mechanics and Control, March 7–11, Virtual.

R. Segev, 2019, "Growing bodies in continuum mechanics: some theoretical issues", a Keynote Lecture at the 55th Meeting of the Society for Natural Philosophy: Microstructure, Defects and Growth in Mechanics", September 13–15, Chicago.

R. Segev and J. Sniatycki, 2018, "On Higher Order Continuum Mechanics", Workshop on Geometry and Mechanics, July 16–20, Victoria, Canada.

R. Segev, 2018, "Worst-Case Loadings and Load Capacity Ratios of Structures", International Conference on Material Strength and Applied Mechanics, April 10–13, Kitakyushu, Japan.

R. Segev, 2017, "The Global Point of View of Continuum Mechanics: An Overview of Some Applications", Nonconvexity, Nonlocality and Incompatibility: From Materials to Biology, Conference in honor of Lev Truskinovsky's 60th birthday, May 5–7, University of Pittsburgh.

R. Segev, 2017, "The Global Point of View of Continuum Mechanics: An Overview of Some Applications", Material Evolution from Plasticity to Morphogenesis, June 11–18, Banff International Research Station for Mathematical Innovation and Discovery.

R. Segev, 2016, "Everything is Continuum Mechanics: From Cauchy to Maxwell and Beyond", Magdeburg Mechanics Colloquium, March 11, Magdeburg.

D. Kim and R. Segev, 2015, "Notes on the Mechanics of the Octopus's Arm", 21st International Conference on Computer Methods in Mechanics and 3rd Polish Congress on Mechanics, September 8–11, Gdansk.

L. Falach and R. Segev, 2015, "On the Optimization of Hyperstress Fields", 21st International Conference on Computer Methods in Mechanics and 3rd Polish Congress on Mechanics, September 8–11, Gdansk.

R. Segev, "An Overview of Metric-Independent Continuum Mechanics", 53rd Meeting of the Society for Natural Philosophy, Calgary, Canada, August, 2015.

R. Segev, "Load Capacity of Bodies and Structures", 44th Technical Meeting of the Society for Engineering Science, Texas A&M U., Symposium honoring Bernard Coleman for receiving the Engineering Science Medal, October, 2007.

R. Segev, "Some Extensions and Analysis of Flux and Stress Theory", a series of lectures in a summer school on Structures of the Mechanics of Complex Bodies, Centro di Ricerca Matematica, Ennio De Giorgi Scuola Normale Superiore, Pisa, Italy, October 2007.

R. Segev, "Further Comments on Generalized Stress Concentration Factors", 41st Technical Meeting of the Society for Engineering Science, Lincoln, Nebraska, Symposium honoring K.R. Rajagopal, October, 2004.

R. Segev, "Notes on the Stress-Energy Tensor in Field Theories", 15th AIMETA - Italian National Congress of Theoretical and Applied Mechanics, Taormina, Italy, 2001.

R. Segev, "Differential Geometric Methods in Mechanics", a series of lectures at Texas A&M University, March, 2001.

R. Segev, "An Introduction to Variational Principles in Continuum Mechanics and Some of Their Applications", a series of lectures in the CISM Consolidating Course on Fundamentals of Mechanics, Szombathely, Hungary, 1990.

PRESENTATIONS OF PAPERS AT CONFERENCES

R. Segev, 2022, "Cauchy's flux theorem for n-dimensional affine spaces", 11th European Solid Mechanics Conference ESMC2022, July 4–8, Galway, Ireland.

R. Segev, 2022, "On the relation between continuum mechanics and electrodynamice", The Evolving Nonlinear Continuum Panorama, July 11-–15, Castro Urdiales, Spain.

R. Segev, 2022, "Cauchy's flux theorem for n-dimensional affine spaces", International Conference on Nonlinear Solid Mechanics ICoNSoM 2022, June 13–16, Alghero, Italy.

M. Epstein and R. Segev, 2020, "Smooth and singular distributions of dislocations", XXV ICTAM International Congress for Theoretical and Applied Mechanics, August 23–28, Milano, Italy (Virtual).

R. Segev and L. Falach, 2019, "Load Capacity Ratios of Perfectly Plastic Bodies and Structures", International Conference on Computational Plasticity (COMPLAS2019), September, 3–5, Barcelona, Spain.

R. Segev, 2019, "Stresses", The 63rd International Souriau Colloquium on Variational Theories – CITV, June 30–July 5, Arpino, Italy.

R. Segev, 2019, "Notes on Higher Order Continuum Mechanics", ICMM6 - International Conference on Material Modelling, June 26–28, University of Lund, Lund, Sweden.

R. Segev, 2018, "On the Relation Between Continuum Mechanics and Electrodynamics", Annual Symposium of Israeli Society for Theoretical and Applied Mechanics, December 9, Tel Aviv University, Tel Aviv, Israel.

R. Segev and D. Kim, 2018, "The Arm of the Octopus as a Soft Robotic Manipulator", 55th Annual Technical Meeting of the Society for Engineering Science, October 10–12, Madrid, Spain.

R. Segev and M. Epstein, 2018, "On the Representation of the Geometry of Defects by Differential Forms and de Rham Currents", 55th Annual Technical Meeting of the Society for Engineering Science, October 10–12, Madrid, Spain.

R. Segev and J. Sniatycki, 2018, "On Higher Order Continuum Mechanics", Workshop on Geometry and Mechanics, July 16–20, University of Victoria, Victoria, British Columbia, Canada.

R. Segev and M. Epstein, 2018, "On the Kinematics of Defects", SIAM Conference on Mathematical Aspects of Materials Science, July 9–13, Portland, Oregon.

R. Kupferman, E. Olami, and R. Segev, 2018, "A Theory of Continuum Dynamics on Manifolds", 10th European Solid Mechanics Conference, July 2–6, Bologna, Italy.

R. Segev, 2018, "Electrodynamics as a Special Case of Stress Theory", International Conference on Plasicity, January 3–9, San Juan, Puerto Rico.

R. Segev, 2016, "Generalized Stress Theory and Electrodynamics", EMMC15, 15th European Mechanics of Materials Conference, September 7–9, Brussels.

R. Segev, 2016, "On the Relation Between Generalized Stress Theory and Electrodynamics", ICTAM

2016, 24th International Congress of Theoretical and Applied Mechanics, August 21–26, Montreal.

D. Kim and R. Segev, 2015, "Some Issues Raised by the Mechanics of an Octopus's Arm", ESMC2015, 9th European Solid Mechanics Conference, July 6–10, Madrid.

D. Kim and R. Segev, 2015, "Notes on the mechanics of an octopus's arm", 4th International Conference on Material Modeling, May 27–29, University of California, Berkeley.

R. Segev, 2015 "Optimal stress fields and load capacity of bodies and structures", Seminar at LMS, Ecole Polytechnique, April 1, Paris, France.

D. Kim and R. Segev, 2014, "Various issues raised by the mechanics of an octopus's arm", Annual Symposium of the Israeli Society for Theoretical and Applied Mechanics, December 21, Tel Aviv University.

R. Segev and J. Goddard, 2014, "Notes on singular heat radiation", The 15th International Heat Transfer Conference, August 10–15, Kyoto, Japan.

D. Kim, Y. Levinson and R. Segev, 2014, "Notes on the mechanics of an octopus's arm", 17th U.S. National Congress on Theoretical and Applied Mechanics, June 15–20, Michigan State University, East Lansing, Michigan.

R. Segev and L. Falach, 2014, "Notes on hyperstress optimization", European Mechanics Society – Colloquium 563: Generalized Continua and Their Application to the Design of Composites and Metamaterials, March 17–21, Cisterna di Latina, Italy.

R. Segev and M. Epstein, 2013, "Notes on the Geometry of Dislocations", Third International Conference on Material Modelling incorporating the 13th European Mechanics of Materials Conference, September 8–11, Warsaw, Poland.

R. Segev and M. Epstein, 2013, "On the geometry of continuous and singular distributions of defects", 50th Conference of the Society of Engineering Science, July 28–31, Brown University, Providence, Rhode Island.

S. Federico, A. Grillo and R. Segev, 2013, "Material counterpart of Darcy's law in terms of differential forms", 4th Canadian Conference on Nonlinear Solid Mechanics , July 23–26, McGill University, Montreal, Canada.

M. Epstein and R. Segev, 2013, "A unified geometric treatment of material defects", 4th Canadian Conference on Nonlinear Solid Mechanics (CanCNSM2013), July 23–26, McGill University, Montreal, Canada.

R. Segev, 2013, "Notes on metric independent continuum mechanics", International Center for Mathematical Sciences Workshop: Differential Geometry and Continuum Mechanics, June 17–21, Edinburgh, United Kingdom.

R. Segev and M. Epstein, 2013, "On the geometry of continuous and singular distributions of dislocations", Symposium in Honor of Roger Fosdick, 13th Pan-American Congress of Applied Mechanics, University of Houston, May 22–24, Texas, U.S.A.

R. Segev and M. Epstein, 2012, "On the mathematical description of dislocations", Annual Meeting of the Israel Society for Theoretical and Applied Mechanics (ISTAM), Tel-Aviv University, December 12, Tel-Aviv, Israel.

L. Falach and R. Segev, 2012, "Notes on the configuration spaces of irregular bodies", 50th Meeting of the Society for Natural Philosophy, University of Udine, October 22–24, Udine, Italy.

R. Segev and L. Falach, 2012, "On metric independent aspects of electromagnetism", 49th Annual Meeting of the Society for Engineering Science, Georgia Institute of Technology, October 10–12,

Atlanta, Georgia, U.S.A.

R. Segev and J. Goddard, 2012, "Notes on radiation and flux theory", Mechanics – New Challenges, the 2012 ISIMM Symposium – STAMM XVIII, Technion, September 3–6, Haifa, Israel.

L. Falach and R. Segev, 2012, "Notes on the mechanics of irregular bodies", 8th European Solid Mechanics Conference (ESMC-2012), Graz University of Technology, July 9–13, Graz, Austria.

R. Segev and L. Falach, 2012, "Notes on metric independent aspects of electromagnetism", 8th European Solid Mechanics Conference (ESMC-2012), Graz University of Technology, July 9–13, Graz, Austria.

R. Segev and L. Falach, 2011, "Velocities, Stresses and Vector Valued de Rham Currents", International Conference on Material Modelling (ICMM2), August 31–September 3, Paris, France.

Y. Levinson and R. Segev, 2010, "Kinematic Modeling of the Octopus's Arm", The 3rd Israeli Conference on Robotics, November 2010, Herzlia, Israel.

R. Segev and L. Falach, 2010, "On Stress Theory for Fractal Bodies", SES2010 – Annual Conference of the Society for Engineering Science, Ames, Iowa, October 3–6.

R. Segev and L. Falach, 2010, "Optimal Stress Fields and Load Capacity Ratios of Perfectly Plastic Bodies and Structures", ICNAAM2010 – International Conference of Numerical Analysis and Applied Mathematics. Rhodes, Greece, September 19–25 .

R. Segev and L. Falach, 2010, "Load Capacity Ratios of Perfectly Plastic Bodies and Structures", 37th SolMech Conference, Warsaw, Poland, September 6–10.

R. Segev and L. Falach, 2010, "Load Capacity Ratios of Perfectly Plastic Bodies and Structures", STAMM2010, International Symposium on Trends in Applications of Mathematics to Mechanics, Berlin, Germany, August 30–September 2.

R. Segev and L. Falach, 2010, "Load Capacity of Perfectly Plastic Bodies and Structures", 50th Israel Annual Conference on Aerospace Sciences, Tel Aviv, Israel, February 17–18.

R. Segev and Y. Levinson, 2010, "On the Kinematics of the Octopus's Arm", CRI Workshop on Geometry and Topology in Robotics, University of Haifa, Haifa, Israel, January 10.

R. Segev and L. Falach, 2009, "Optimization in Stress Analysis and Load Capacity of Structures", The 12th Israeli Mini-Workshop in Applied and Computational Mathematics, Ben-Gurion University, Beer Sheva, Israel, December 31.

R. Segev and L. Falach, 2009, "On the Load Capacity of Plastic Structures", Annual Symposium of the Israeli Society for Theoretical and Applied Mechanics, Tel Aviv University, Beer Sheva, Israel, December 13.

M. Epstein and R. Segev, 2008, "Notes on Stresses in Chains", in Proceedings (CD-ROM). 22nd International Congress of Theoretical and Applied Mechanics (ICTAM 2008), Adelaide (AU), 24-29 Aug 2008.

R. Segev, 2007, "Load Capacity of Bodies and Structures", The Interface between Atomistic and Continuum Theories, Joint meeting of the Society of Natural Philosophy and the Institute for Mathematics and Applications, University of Houston, October 26 – 28.

R. Segev, 2007, "Optimal Stress Fields and Generalized Stress Concentration Factors", Geometry Continua and Microstructure 7, University of Lancaster, U.K., September 25 – 27.

R. Segev, 2006, "Notes on Generalized Stress Concentration Factors and Optimal Stress Fields", Meeting of the Israeli Society for Theoretical and Applied Mechanics, January 1.

R. Segev, 2006 "On Optimal Stress Fields and Generalized Stress Concentration Factors", International Symposium on Trends in Applications of Mathematics to Mechanics, STAMM-2006, Vienna University of Technology, July 10 – 14.

R. Segev and G. deBotton, 2006, "Stress Optimization for Structures", 15th U.S. National Congress on Theoretical and Applied Mechanics, University of Colorado at Boulder, June 25 – 30.

R. Segev, 2005, "On Optimal Stress Distributions", Meeting of the Society for Natural Philosophy, Bari, Italy.

R. Segev and R. Peretz, 2005, "Notes on Generalized Stress Concentration Factors and Bounds on Trace Operators", 17-th Italian Congress for Theoretical and Applied Mechanics, AIMETA2005, Florence, Italy.

R. Segev and R. Peretz, 2005, "Bounds on Optimal Stress Distributions", Twelveth Annual International Conference on Composites/Nano Engineering, Tenerife, Spain.

R. Segev, 2005, "On Generalized Stress Concentration Factors", Israel Conference of Mechanical Engineering, Tel-Aviv.

R. Segev, 2004, "Generalized Stress Concentration Factors", SES2004, Conference of the Society for Engineering Science, Lincoln, Nebraska.

R. Segev, 2004, "Generalized Stress Concentration Factors", ICTAM2004, International Congress for Theoretical and Applied Mechanics, Warsaw, Poland.

R. Segev, 2003, "Whitney's Geometric Integration Theory and Continuum Mechanics", Department of Mathematics, University of Kentucky, Lexington.

R. Segev, 2003, "On Generalized Stress Concentration Factors", 2003 - Meeting of the Society for Natural Philosophy, University of Kentucky, Lexington.

G. Rodnay and R. Segev, 2003, "Fluxes for Irregular Regions", 29th Israeli Conference on Mechanical Engineering, Technion, Haifa.

G. Rodnay and R. Segev, 2002, "Cauchy Fluxes and Geometric Integration Theory", STAMM2002 (Symposium on trends in applications of mathematics to mechanics), Maiori, Italy.

G. Rodnay and R. Segev, 2002, "Cauchy's Flux Theorem in Light of Geometric Integration Theory", Truesdell Memorial Symposium in The U.S. National Congress for Theoretical and Applied Mechanics, Virginia Tech., Blacksburg, Virginia.

R. Segev, 2001, "Flux Conjugate Stresses", Current Ideas in Mechanics, Thermodynamics and Related Fields (CIMRF) 2001, Berlin, Germany.

R. Segev and G. Rodnay, 2000, "On the Geometric Structure of Cauchy's Theory of Stresses", Mathematical Continuum Mechanics, Oberwolfach, Germany.

R. Segev and G. Rodnay, 2000, "On Worldlines and Material Elements Induced by Extensive Properties on General Manifolds", Symposium on Trends in Applications of Mathematics to Mechanics, O'Donoghue & Flavin, Galway, Ireland eds., Elsevier, pp. 192-197.

R. Segev and G. Rodnay, 2000, "Stresses for Bodies with Microstructure", 4th EUROMECH Solid Mechanics Conference, Metz, France.

R. Segev and G. Rodnay, 1999, "Geometrical Aspects of Stress Theory", Current Ideas in Mechanics and Related Fields 1999, Jerusalem.

R. Segev and G. Rodnay, 1999, "Geometrical Aspects of the Scalar Valued Balance Law", Third International Seminar on Geometry, Micro-Structure and Continuum Mechanics, Bad Herrenalb, Ger-

many.

R. Segev and G. Rodnay, 1998, "Notes on the General Balance Law", 40th Meeting of the Society for Natural Philosophy, Carnegie Mellon Univ., Pittsburgh.

R. Segev and G. Rodnay, 1998, "On Continuum Kinematics of Volumetric Growth", Continuum Models and Discrete Systems (CMDS99), Proceedings of the 9th International Symposium, June 29-July 3, 1998, Istanbul Turkey, Inan and Markov eds., World Scientific 1999.

R. Segev and G. Rodnay, 1998, "On Volumetric Growth and Organisms", Second International Seminar on Geometry, Continua, and Microstructure, Universidad Carlos III de Madrid, Madrid, Spain.

R. Segev and M. Epstein, 1996, "On Theories of Growing Bodies", J.L. Ericksen Symposium on Recent Developments in Elasticity at the ASME Mechanics Materials Conference, Johns Hopkins University, Baltimore.

R. Segev, 1995, "Growing Bodies", Third Meeting on Current Ideas in Mechanics and Related Fields, Segovia, Spain,

R. Segev, E. Fried and G. deBotton, 1994, "Kinematics and Force Theory for Multiphase Bodies", 38th Annual Meeting of the Society for Natural Philosophy, Cornell Univ., Ithaca.

R. Segev, E. Fried and G. deBotton, 1994, "Some Geometrical Aspects of the Mechanical of Multiphase Bodies", The World of Shells, Banff, Canada.

R. Segev and E. Fried, 1993, "Kinematics and Force Theory for Evolving Interfaces", Annual Meeting of the SIAM, Philadelphia.

R. Segev and E. Taragan, 1992, "Stress Theory for Mixtures", Annual Meeting of the Society for Engineering Science, University of California, San Diego.

R. Segev, 1990, "A Generalization of the Cauchy Conditions", 34th Meeting of the Society for Natural Philosophy, University of Nebraska, Lincoln.

R. Segev, 1988, "A Weak Setting for the Theories of Forces and Stresses", 25th Anniversary Meeting of the Society for Natural Philosophy, Johns Hopkins University, Baltimore.

A. Ailon and R. Segev, 1986, "Bounds on the Time Response of a Multi-Link Mechanical System, Proceedings of the Japan-U.S.A. Symposium on Flexible Automation, Osaka, Japan.

R. Segev and A. Ailon, 1986, "Jet Locality as Implied by Body Self Determinism and Continuity", Proceedings of the International Conference on Computational Mechanics, Tokyo, G. Yagawa and S.N. Atluri eds., Springer-Verlag.

R. Segev, 1986, "A Variational Framework for nth Order Invariant Continuum Mechanics", Proceedings of the International Conference on Computational Mechanics, Tokyo, G. Yagawa and S.N. Atluri eds., Springer-Verlag.

R. Segev, 1985, "On the Existence of Stresses in Continuum Mechanics", 19th Israeli Congress of Mechanical Engineering, Ben-Gurion University, Beer Sheva.

R. Segev and M. Epstein, 1981, "Stress Field Representation of Local Forces", 17th Midwestern Mechanics Conference, University of Michigan, Ann Arbor.

M. Epstein and R. Segev, 1980, "On the Structure of Continuum Mechanics", 22nd Polish Solid Mechanics Conference, Giolun near Koscierzyna.

M. Epstein and R. Segev, 1980, "On the Principle of Virtual Work", 15th International Congress of Theoretical and Applied Mechanics, University of Toronto, August 1980.

S. Rautu and R. Segev, 1977, "Optimization of Foundations", Tenth Israeli Congress of Mechanical

Engineering, Technion, Israel.

S. Rautu and R. Segev, 1977, "Optimum Cost of Foundations", Joint Applied Mechanics, Fluid Engineering and Bio-Engineering Conference, Yale University.