Barbara Gambin

Joint papers with J.Joachim Telega:

1. J.J. Telega, A. Gałka, B. Gambin, Effective properties of physically nonlinear piezoelectric composites, Arch. Mech. ,50, 2, pp. 321-340, **1998**
2. A. Gałka, B. Gambin, J.J. Telega, Variational bounds on effective moduli of anisotropic piezoelectric composites, Arch. Mech. ,50, 4, pp. 675-689, **1998**
3. Gambin B., Telega J.J., Effective properties of elastic solids with randomly distributed microcracks, Mech. Res. Comm., 27, 6, pp. 697-706, **2000**
4. Telega J.J., Gambin B., Stochastic homogenization of elastic - perfectly plastic Hencky solids: influence of boundary conditions, Bull. Pol. Acad. Sci., Tech. Sci., 49, 17-29, **2001**
5. Gambin B. Telega J.J., Nazarenko L.; Stationary thermoelasticity and stochastic homogenization; Arch. Mech.; 54; 319-345; **2002**
6. Gałka A. ,Gambin B., Telega J.J., Tokarzewski S.; Macroscopic properties of compact bone and its hierarchical structure; Acta Bioeng. Biomech.; 5, Suplement 1; 151-160; **2003**
7. Telega J.J. , Galka A., Gambin B., Tokarzewski S.; Homogenization methods in biomechanics; J.J. Telega (ed.), Orthopaedic Biomechanics AMAS Conference Proceedings, Vol. 5, IFTR, Warszawa **2004**, pp.333-382
8. Gambin B., Gałka A., Telega J.J., Tokarzewski S., Influence of anisotropy induced by microcracks on effective elastic properties, ENGINEERING TRANSACTIONS, Vol.53, No.4, pp.409-420, **2005**
   We organized together the Workshop and were editors of the book Composites, Polycrystals, and Smart Materials, Proceedings of the NATO Advanced Research Workshop, held in Warsaw, Poland, 23-26 June **2003** Series: Nato Science Series II, Vol. 170, Ponte Castaneda, P.; Telega, J.J.; Gambin, B. (Eds.) **2004**, XXI, 355 p. Springer Dordrecht

Papers inspired by Joachim's ideas:

1. Bielski W., Gambin B., Relationship between existence of energy minimizers of incompressible and nearly incompressible magnetostrictive materials, REPORTS ON MATHEMATICAL PHYSICS, ISSN: 0034-4877, Vol.66, No.2, pp.147-157, **2010**
2. Gambin B., Bielski W., Incompressible limit for a magnetostrictive energy functional, BULLETIN OF THE POLISH ACADEMY OF SCIENCES: TECHNICAL SCIENCES, ISSN: 0239-7528, DOI: 10.2478/bpasts-2013-0110, Vol.61, No.4, pp.320-326, **2013**
3. Gambin B., Kruglenko E., Gałka A.A., Wojnar R., Macroscopic thermal properties of quasi-linear cellular medium on example of the liver tissue, COMPUTER ASSISTED METHODS IN ENGINEERING AND SCIENCE, ISSN: 2299-3649, Vol.22, No.4, pp.329-346, **2015**

R. Wojnar

The late professor J. J. Telega in my scientific work

The works are grouped into two parts.

(i) works done under the supervision of J. J. Telega (T)

(ii) works inspired by J. J. Telega (I)

Part I

References

[T1] A. Gałka, J. J. Telega, R. Wojnar, Homogenization and thermopiezoelectricity, Mechanics Research Communications 19 (4), 315-324 (1992).

[T2] A. Gałka, J. J. Telega, R. Wojnar, Some computational aspects of homogenization of thermopiezoelectric composites, Computer Assisted Methods in Engineering and Science 3 (2), 133-154

[T3] A. Gałka, J. J. Telega, R. Wojnar, Homogenization of thermoelastic solid in the presence of diffusion, *Thermodynamics and Kinetic Theory* - Proceedings of the 5th Bilateral Polish- Italian Meeting, 28 August - 1 September 1990, Mądralin, Poland, Series on Advances in Mathematics for Applied Sciences - Volumen12, Editors Witold Kosiński, Wiesław Larecki, Angelo Morro and Henryk Zorski, World Scientific, Singapore-New Jersey- London-Hong Kong 1992, pp.35–48.

[T4] A. Gałka, J. J. Telega and R. Wojnar, Homogenization of elastic solid in presence of heat- and mass-diffusion transfer, *Second Minsk International Heat and Mass Transfer Forum*, (Academic Scientific Complex "A. V. Luikov Heat and Mass Transfer Institute of the Academy of Sciences of Belarus") N. V. Pavlyukevich and I. G. Gurevich, Minsk 1992.

[T5] A. Gałka, J. J. Telega, R. Wojnar, Thermodiffusion in heterogeneous elastic solids and homogenization, *Prace IPPT - IFTR Reports*, ISSN: 2299-3657, No.14, pp.1-76, 1993.

[T6] A Gałka, JJ Telega, R Wojnar Thermodiffusion in heterogeneous elastic solids and homogenization Archives of Mechanics/Archiwum Mechaniki Stosowanej 46 (3), 267-314

[T7] J. J. Telega and R. Wojnar, Electrolite flow through porous elastic medium, *344. Fluid-structure interactions in biomechanics* EUROMECH Colloquium, Prof. T. J. Pedley, Department of Applied Mathematical Studies, The University of Leeds, Leeds LS2 9JT, UK, Prof. C. G. Caro, London, 10-13 April 1996, London, England

[T8] R. Wojnar & J. J. Telega, Electrokinetics in dielectric porous media, in: *Problems of Environmental and Damage Mechanics*, edit. W. Kosiński, R. de Boer, D. Gross, Wydawnictwa IPPT PAN, Warszawa 1997, pp. 97–136.

[T9] J. J. Telega, R. Wojnar, Flow of conductive fluids through poroelastic media with piezoelectric properties, *Journal of Theoretical and Applied Mechanics* **36** (3) 775–794 (1998).

[T10] W. Bielski, J.J. Telega, R.Wojnar, Nonstationary flow of a viscous fluid through a porous elastic medium: Asymptotic analysis and two-scale convergence, *Mechanics Research Communications* **26** (5) 619–628 (1999).

[T11] W. Bielski, J. J. Telega, R. Wojnar, Macroscopic equations for nonstationary flow of Stokesian fluid through porous elastic medium, *Archives of Mechanics* **51** (3–4) 243–274 (1999).

[T12] A. Gałka, J. J. Telega and R. Wojnar, Effective moduli of thermoelastic composites with temperature-dependant coefficients, *Third International Congress on Thermal Stresses: THERMAL STRESSES '99*, June 13–17, 1999, Cracow, Poland, hosted by Tadeusz Kościuszko Cracow University of Technology, *Proceedings*, eds. J. Skrzypek and R. B.Hetnarski, , pp.25-32, Cracow Univ.of Technology , Poland (ISBN 83-86991-57-7 ; 1999).

[R69] . Wojnar, Heat flow in a heterogeneous body, *3rd International Congress on Thermal Stresses: THERMAL STRESSES 99*, June 13–17, 1999, Cracow, Poland, hosted by Tadeusz Kościuszko Cracow University of Technology, *Proceedings*, eds. J.Skrzypek and R.B.Hetnarski, , pp.25-32, Cracow Univ.of Technology , Poland (ISBN 83-86991-57-7 ; 1999),

[T13] . Bielski, J. J. Telega, R. Wojnar, Flow of two immiscible fluids through an elastic porous medium, *Mehrfeldprobleme in der Kontinumsmechanik*, Sonderforschungsbereich 404, *International Conference on Multifield Problems*, October 6–8 1999, Book of Abstracts, Bericht 99/12, A.-M. Sändig, W. L. Wendland (Hrsg.), p.22.

[T14] . J. Telega, R. Wojnar, Chrząstka jako wielofazowy materiał anizotropowy - Cartilage a an anisotropic multiphase material, *Acta of Bioengineering and Biomechanics*, Vol. 1, Supplement 1, 1999, Materiały IV Ogólnopolskiej Konferencji Naukowej "BIOMECHANIKA '99" Proceedings of the 4 th Polish Scientific Conference "BIOMECHANICS '99", 8–11.09.1999, Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław 1999.

[T15] W. Bielski, J. J. Telega and R. Wojnar, Modelling of nonstationary two-phase flow through elastic porous medium, *33^{rd} Solid Mechanics Conference SolMech 2000*, Institute of Fundamental Technological Research Center of Mechanics and Information Technology and Committee of Mechanics of Polish Academy of Sciences, Zakopane, September 5–9, 2000, pp. 109–110.

[T16] A. Gałka, J. J. Telega and R. Wojnar, Modelling of cartilage: anizotropy and inhomogeneity, *33^{rd} Solid Mechanics Conference SolMech 2000*, Institute of Fundamental Technological Research Center of Mechanics and Information Technology and Committee of Mechanics of Polish Academy of Sciences, Zakopane, September 5–9, 2000, pp. 173–174.

[T17] JJ Telega, R Wojnar, Flow of electrolyte through porous piezoelectric medium: macroscopic equations, Comptes Rendus de l'Acadmie des Sciences-Series IIB-Mechanics-Physics 328 (3) 225–230 (2000).

[T18] A. Gałka, J. J. Telega and R. Wojnar, Influence of temperature on macroscopic moduli of piezoelectric composites, *Advanced Course on Structural Control and Health Monitoring: SMART '01*, May 22–25, 2001, Staszic Palace, Warsaw, Poland. Organizer: Jan Holonicki-Szulc, Centre of Excellence for Advanced Materials and Structures.

[T19] W. Bielski, A. Gałka, J. J. Telega and R. Wojnar, Modelling of flow through elastic porous media by using homogenization methods, *Analyitic Methods of Analysis and Differential Equations AMADE 2001*, Conference, Section 2.4 Problems of mathematical physics, State University BSU, February 15–19, Minsk, Belarus, International Sport Center ISC Staiki 2001.

[T20] J. J. Telega and R. Wojnar, Streaming potentials in biological tissues, *AMAS Workshop in Orthopaedic Biomechanics OBM '02*, Warsaw 2002, pp. 387–454.

[T21] A. Gałka, J. J. Telega and R. Wojnar, Cartillage modelling: elektromechanical behaviour and swelling, in : *Proceedings of the Second Biot Conference on Poromechanics: Poromechanics II*, Grenoble, France, 26-28 August 2002; Poromechanics II, eds. J. - L. Auriault, Ch. Geindreau, P. Royer, J. - F. Bloch, C. Boutin, J. Lewandowska, A. A. Balkema Publishers, Lisse, Abingdan, Exton (PA), Tokyo 2002, pp. 59–64.

[T22] W. R. Bielski, J. J. Telega and R. Wojnar, One- and two-phase nonsteady flows of viscous fluids through porous deformable medium, in : *Proceeding of the Second Biot Conference on Poromechanics: Poromechanics II*, Grenoble, France, 26-28 August 2002; Poromechanics II , eds. J - L.Auriault et al., A. A. Balkema Publishers, Lisse, Abingdan, Exton (PA), Tokyo 2002, pp. 339–344.

[T23] A. A. Gałka, J. J. Telega, R. Wojnar, Macroscopic relations for nonlinear thermodiffusion in heterogeneous elastic medium, *XXI International Congress of Theoretical and Applied Mechanics ICTAM 04*, 15 - 21 August 2004, Warsaw, Poland.

[T24] J. J. Telega, R Wojnar, Piezoelectric effects in biological tissues, Journal of Theoretical and Applied mechanics 40 (3), 723-759 (2002).

[T25] J. J. Telega, R. Wojnar, Electrokinetics in random deformable porous media, *IUTAM Symposium on Physicochemical and Electromechanical Interactions in Porous Media*, pp. 117–124, Edited by J.M. Huyghe, Peter A.C. Raats and Stephen C. Cowin, SOLID MECHANICS AND ITS APPLICATIONS, Volume 125, Series Editor: G.M.L. GLADWELL, Springer, Dordrecht 2005.

[T26] J. J. Telega, R. Wojnar, Electrokinetics in random piezoelectric porous media, *Bulletin of the Polish Academy of Sciences Technical Sciences* **55** (1) 125–128 (2007).

Part II

References

[I1] . Wojnar, Homogenization in viscoelasticity and thermal effects, *Reports on Mathematical Physics* **33** (1–2) 283–294 (1993).

[I2] . Wojnar, Homogenization of electric conductor and Joule-Lenz heat, *Journal of Technical Physics* **35** (1–2) 151-159 (1994).

[I3] . Wojnar, Effective Young's modulus of a polymer composite, *10th International Conference on Polymers Deformation, Yield and Fracture*, 7–10 April 1997, Conference papers, Churchill College, Cambridge, UK.

[I4] R. Wojnar, Upper and lower bounds on heat flux, *Journal of Thermal Stresses* **21** (3–4) 381–403 (1998).

[I5] R. Wojnar, On fluctuations in thermoelasticity of composites, *Zeszyty Naukowe Politechniki Świętokrzyskiej*, Mechanika **66** 277–283 (1998).

[I6] R Wojnar, S Bytner, A Gałka, Effective properties of elastic composites subject to thermal fields, Thermal Stresses V, 257-265 (1999).

[I7] . Wojnar, Nonlinear heat equation and thermodiffusion, *Reports on Mathematical Physics* **46** (1) 295–301 (2000).

[I8] . Tokarzewski, G. Starushenko and R. Wojnar, Optimum configurations of arterial branching, *33^{rd} Solid Mechanics Conference SolMech 2000*, Institute of Fundamental Technological Research Center of Mechanics and Information Technology and Committee of Mechanics of Polish Academy of Sciences, Zakopane, September 5–9, 2000, pp. 401–402.

[I9] . Wojnar, Chondrocyte deformation and the regulation of cartilage activity, *Advanced Course on Structural Control and Health Monitoring: SMART '01*, May 22–25, 2001, Staszic Palace, Warsaw, Poland. Organizer: Jan Holonicki-Szulc, Centre of Excellence for Advanced Materials and Structures.

[I10] . Wojnar, Swelling of cartilage, *34*$^{\text{th}}$ *Solid Mechanics Conference*, Polish Academy of Sciences Institute of Fundamental Technological Research, Zakopane, September 4–8, 2001.

[I11] . Wojnar, The average behaviour of financial market by 2 scale homogenisation, *Acta Physica Polonica* B **37** (11) 3177–3185 (2006); arXiv preprint physics/0608191, 2006.

[I12] . Bielski, R Wojnar, Homogenisation of flow through double scale porous medium, *Analytic methods of analysis and differential equations* AMADE, 2006.

[I13] . Bielski and R. Wojnar, Homogenisation of flow through double scale porous medium, in: eds. A.A. Kilbas and S.V. Rogosin, *Analytic Methods of Analysis and Differential Equations*, pp. 2744, AMADE Cambridge Scientific Publishers, Cambridge 2008.

[I11] . Bielski and R. Wojnar, Nonstationary flow through porous piezoelectric body with two scale structure, *35*$^{\text{th}}$ *Solid Mechanics Conference*, Polish Academy of Sciences Institute of Fundamental Technological Research, Kraków, September 4–8, 2006, pp.125–126.

[I14] . Wojnar, Smoluchowski's zeta potential in compressible flow, *35*$^{\text{th}}$ *Solid Mechanics Conference*, Polish Academy of Sciences Institute of Fundamental Technological Research, Kraków, September 4–8, 2006, pp.185–186.

[I15] W. Bielski, A. Gałka, St. Tokarzewski, R. Wojnar, Prawa filtracji dla przepływów nieustalonych, [Filtration laws for unsteady flows], *I Kongres Mechaniki Polskiej* KMP 2007, Warszawa, 28–31 sierpnia 2007. Streszczenia referatów: J. Kubik, W. Kurnik, W. K. Nowacki (Red.).

[I16] R. Wojnar, Pochłanianie dźwięku w ośrodku porowatym wypełnionym cieczą, [Sound absorption in a porous medium filled with liquid], *VII Konferencja Nowe kierunki rozwoju mechaniki* PTMTS, Rogów, 6–8 czerwca 2008r., Symposium: Molecular simulations of fluids and statistical themodynamics (MS-ST), p. 266.

[I17] . Wojnar, Viscous incompressible flow in porous media, *Selected Topics of Contemporary Solid Mechanics*, Proceedings of the 36th Solid Mechanics Conference, Gdańsk, Poland, September 912, 2008, Zbigniew Kotulski, Piotr Kowalczyk, Włodzimierz Sosnowski (Editors), PRACE IPPT - IFTR REPORTS 2/2008, pp.124–12

[I18] . Wojnar, Viscous incompressible flow in porous media, *Selected Topics of Contemporary Solid Mechanics*, Proceedings of the 36th Solid Mechanics Conference, Gdańsk, Poland, September 912, 2008, Zbigniew Kotulski, Piotr Kowalczyk, Włodzimierz Sosnowski (Editors), PRACE IPPT - IFTR REPORTS 2/2008, pp.124–125.

[I19] . Wojnar, Bone and cartilage - its structure and physical properties, in: *Biomechanics of hard tissues; modeling, testing and materials*, pp.1–75, Edited by Andreas Öchsner and Waqar Ahmed, WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim 2010.

[I20] R. Wojnar and W. Bielski, Flow in canal with rough bottom, *9th International ISAAC Congress* August 5–9, 2013 in Kraków, Poland, Editors: Vladimir Mityushev, Łukasz T. Stępień and Alfred Budziak.

[I21] R. Wojnar, Flow in the canal with plants on the bottom, in: *Complex Analysis and Potential Theory with Applications*, Editors: Tahir Aliev Azeroğly, Anatoly Golberg, Sergei V.Rogosin, Cambridge Scientic Publishers, 2014.

[I22] R. Wojnar, Flow of Stokesian fluid through a cellular medium and thermal effects, *Bulletin of the Polish Academy of Sciences Technical Sciences* **62** (2) 321–329 (2014).

[I23] R. Wojnar, B. Gambin, Thermal properties of biomaterials on the example of the liver, in: *PCM-CMM-2015 3rd Polish Congress of Mechanics & 21st Computer Methods in Mechanics*, pp.267–268, Gdańsk, Poland, September 8th–11th 2015, pp.267–268.

[I24] B. Gambin, E. Kruglenko, A. A. Gałka, R.Wojnar, Macroscopic thermal properties of quasi-inear cellular medium on example of the liver tissue, *Computer Assisted Methods in Engineering and Science* **22** 329–346 (2015).

[I25] W. Bielski, R. Wojnar, Laminar flow past the bottom with obstacles - from suspension to poorus medium, in: *PCM-CMM-2015 3rd Polish Congress of Mechanics & 21st Computer Methods in Mechanics*, pp.267–268, Gdańsk, Poland, September 8th–11th 2015, pp.207–208.

[I26] W. Bielski, R. Wojnar, Laminar flow past the bottom with obstacles: suspension and porous medium approximations, *1 st Workshop on Porous Media, Book of Abstracts*, p.8, Olsztyn, 1–3 July 2016, University of Warmia and Mazury in Olsztyn, Faculty of Technical Sciences, Polish Society of Theoretical and Applied Mechanics, Olsztyn - Poland, 1–3 July 2016.

[I27] W. Bielski, R. Wojnar, Boundary value problem for the interface between Stokes' and Brinkman's flows, *BFA 2016, The 3rd International Workshop:Boundary Value Problems, Functional Equations and Applications*, Rzeszów, Poland, April 20-23, 2016.

[I28] W. Bielski (IGF PAN) and R. Wojnar (IPPT PAN), Brinkman's flow through porous elastic media: an asymptotic approach, *40th Solid Mechanics Conference* 40th SolMech2016, Session 3: Geomechanics and multiscale modelling of materials - 31.08 2016, 16:20, organized by Institute of Fundamental Technological Research, Polish Academy of Sciences, Warsaw, Poland, 29.08.–2.09.2016.

[I29] W. Bielski, R. Wojnar, Plane flow through the porous medium with chessboard-like distribution of permeability, *2 nd Workshop on Porous Media, Book of Abstracts*, p.7, Olsztyn, 28–3 0 June 2018, University of Warmia and Mazury in Olsztyn, Faculty of Technical Sciences, Polish Society of Theoretical and Applied Mechanics, Olsztyn - Poland, 28–30 June 2018.

[I30] W. Bielski, R. Wojnar, Gravity waves in canals with corrugated bottom: an asymptotic approach, INTERNATIONAL CONFERENCE Dynamical Systems – Theory and Applications DSTA, December 2–5, ódź 2019.

[I31] W. Bielski, R. Wojnar, Brinkman's regularization of Darcian seepage, *4th Polish Congress of Mechanics and 23rd International Conference on ComputerMethods in Mechanics*, PCM-CMM-2019,Kraków, Poland, September 8–12, 2019.

[132] W. Bielsk, R. Wojnar, Long gravity waves in a canal with a corrugated bottom in the asymptotic description, JOURNAL OF THEORETICAL AND APPLIED MECHANICS, ISSN: 1429-2955, DOI: 10.15632/jtam-pl/138855, Vol.59, No.3, pp.443-454, 2021.

[I33] V. Mityushev, D. Nosov, R. Wojnar, Mechanics and Physics of Structured Media: Asymptotic and Integral Equations Methods of Leonid Filshtinsky, Chapter 3 - Two-dimensional equations of magneto-electro-elasticity, Academic Press, Elsevier Inc., pp.63-98, 2022.

[I34] R. Wojnar, On Electromagnetic Wave Equations for a Nonhomegenous Microperiodic Medium, Uwe Khler, Michael Reissig, Irene Sabadini, Jasson Vindas (eds.), Analysis, Applications, and Computations, Research Perspectives, Proceedings of the 13th ISAAC Congress (International Society for Analysis, its Applications and Computation), Ghent, Belgium, 2021 (Trends in Mathematics) 1st ed. Publisher Birkhuser Springer Nature Switzerland AG 2023.

Stanisław Tokarzewski

Papers joint with J.J. Telega and inspired by J.J. Telega

1. Telega, JJ; Tokarzewski S-continued fractions by multipoint Pade approximants, 2nd International Conference on Numerical Analysis and its Applications, 2001, *NUMERICAL ANALYSIS AND ITS APPLICATIONS*, **1988**, pp.741-748, S and Galka, A., Modelling torsional properties of human bones
2. Tokarzewski, S and Telega, JJ., A contribution to the bounds on real effective moduli of two-phase composite materials, Sep **1997**, *MATHEMATICAL MODELS & METHODS IN APPLIED SCIENCES*, 7 (6) , pp.769-789
3. Andrianov, IV; Starushenko, GA and Tokarzewski, S, Homogenization procedure and Pade approximations in the theory of composite materials with parallelepiped inclusions, Jan **1998**, *INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER*, 41 (1), pp.175-181
4. Tokarzewski, S and Telega, JJ, S-continued fraction method for the investigation of a complex dielectric constant of two-components composite Bounds on effective moduli by analytical continuation of the Stieltjes function expanded at zero and infinity, Jan **1998,** ZEITSCHRIFT FUR ANGEWANDTE MATHEMATIK UND PHYSIK, 49 (1) , pp.137-155
5. Galka, A; Telega, JJ and Tokarzewski, S., Heat equation with temperature-dependent conductivity coefficients and macroscopic properties of microheterogeneous media, April **2001**, *MATHEMATICAL AND COMPUTER MODELLING*, 33 (8-9) , pp.927-942
6. Tokarzewski, S and Andrianov, I., Effective coefficients for real non-linear and fictitious linear temperature-dependent periodic composites, Jan **2001**, *INTERNATIONAL JOURNAL OF NON-LINEAR MECHANICS*, 36 (1), pp.187-195
7. Tokarzewski, S; Andrianov, I; (...); Starushenko, G., Analytical continuation of asymptotic expansions of effective transport coefficients by Pade approximants, 3rd World Congress of Nonlinear Analysts, Aug **2001**, *NONLINEAR ANALYSIS-THEORY METHODS & APPLICATIONS*, 47 (4), pp.2283-2292
8. Jacek GilewiczMaciej PindorStanisław Tokarzewski, Continued fractions, two-point Padé approximants and errors in the Stieltjes case, Journal of Computational and Applied Mathematics, August **2002,** 145 , 99–112
9. Tokarzewski, S; Telega, JJ., Pindor M., Gilewicz, J., A note on total bounds on complex transport moduli of parametric two-phase media, Jul **2003**, *ZEITSCHRIFT FUR ANGEWANDTE MATHEMATIK UND PHYSIK,* 54 (4), pp.713-726
10. Jacek Gilewicz,Maciej Pindor, J.Joachim Telega, Stanisław Tokarzewski, N-point Padé approximants and two-sided estimates of errors on the real axis for Stieltjes functions, *Journal of Computational and Applied Mathematics*, Volume 178, Issues 1–2, 1 June **2005**, Pages 247-253e

11. Tokarzewski, S; Magnus, AP and Gilewicz, J, Estimation of a Stieltjes function expanded to Taylor series at complex conjugate points, 9th Conference on Orthogonal Polynomials, Special Functions and Applications, Dec 1, **2009,** *JOURNAL OF COMPUTATIONAL AND APPLIED MATHEMATICS,* 233 (3), pp.835-84
12. Tokarzewski, S, Inequalities for bounds on effective transport coefficients of two-phase media from power expansions at real points, *ZEITSCHRIFT FUR ANGEWANDTE MATHEMATIK UND PHYS*IK, Aug **2010**, 61 (4) , pp.773-780

13. Tokarzewski, S and Wajnryb, E, GENERAL INEQUALITIES FOR MULTIPOINT PADE APPROXIMANTS TO A STIELTJES FUNCTION EXPANDED AT REAL POINTS, Oct **2011**, *MATHEMATICAL INEQUALITIES & APPLICATIONS.* 14 (4), pp.977-988
14. Tokarzewski, S, Multipoint matrix Pade, approximant bounds on effective anisotropic transport coefficients of two-phase media, Feb **2013**, *ZEITSCHRIFT FUR ANGEWANDTE MATHEMATIK UND PHYSIK* 64 (1), pp.167-178

The list of the joint papers by Józef Joachim Telega and Tomasz Lewiński and the list of papers of the employees of the

Department of Structural Mechanics and Computer Aided Engineering, Faculty of Civil Engineering, Warsaw University of Technology

inspired by the concepts of Józef Joachim Telega

A. Papers joint with J. J. Telega:

Papers on homogenization of stiffnesses of plates and laminates weakened by cracks

T. Lewiński, J.J. Telega, On homogenization of fissured elastic plates. *Mech.Res.Comm*. **12**(1985) 271-281

T. Lewiński, J.J. Telega, Asymptotic method of homogenization of fissured elastic plates. *J.Elasticity* **19**(1988) 37-62

T. Lewiński, J.J. Telega, Homogenization of fissured Reissner-like plates. Part I- Method of two-scale asymptotic expansions. *Arch.Mech.* **40**(1988) 97-11; Part II- Convergence. *Arch.Mech.* **40** (1988) 119-134; Part II- Convergence. *Arch.Mech.* **40** (1988) 119-134; Part III- Some particular cases and an illustrative example, ibidem 295-303

T. Lewiński, J.J. Telega, Overall properties of plates with partially penetrating fissures. *C.R.Acad.Sci.Paris* **309**(1989) Ser.II, 951-956

T. Lewiński, J.J. Telega, Stiffness reduction and stress analysis in cracked [0m/90n]s laminates. *Acta Mechanica,* **131**(1998) , 177-201

Papers on homogenization of stiffnesses of thin shells of periodic structure

T. Lewiński, J.J. Telega, Asymptotic method of homogenization of two models of elastic shells. *Arch.Mech*. **40**(1988) 705-723

J.J. Telega, T. Lewiński, Homogenization of linear elastic shells: Γ - convergence and duality. Part I. Formulation of the problem and the effective model. *Bull.Polon.Acad.Sci., Ser.Tech.Sci* **46**(1998) No 1, pp 1-9

J.J. Telega, T. Lewiński, Homogenization of linear elastic shells: Γ - convergence and duality.Part II . Dual homogenization,1998, *Bull.Polon.Acad.Sci.,Ser.Tech.Sci* **46** (1998) No 1, 11-21

T. Lewiński, J.J. Telega, Optimal design of membrane shells by using relaxation and homogenisation, *J.Theor.Appl.Mech*. **41**(2003) No 3, 545-560

Papers on optimization of structural topology

T. Lewiński, J.J.Telega, Michell-like grillages and structures with locking, *Arch.Mech.* **53** (2001) No 4-5, 457-485.

J.J.Telega, T.Lewiński, On a saddle-point theorem in minimum compliance design, *J.Optimiz.Theory and Appl.* **106** (2000) No 2, 441-450,

see
Chapter VI.
Application of homogenization methods in optimum design of plates and shells

especially: Sec 26 Thin bending two-phase plates of minimum compliance

of the book

T. Lewiński and J. J. Telega,
Plates, Laminates and Shells. Asymptotic Analysis and Homogenization
World Scientific Publishing. Series on Advances in Mathematics for Applied Sciences vol.52, 768 pp. Singapore, New Jersey, London, Hong Kong, 2000

B. Selected papers and books inspired by the cooperation with Professor J. J. Telega

Papers on

- **2D modelling of deformation of plates, shells and laminates**

T. Lewiński, On refined plate models based on kinematical assumptions. *Ing.-Archiv* **57**(1987) 133-146

T. Lewiński, On the twelfth-order theory of elastic plates, *Mech.Res.Comm*. **17**(6)(1990) 375-382

T. Lewiński, On displacement-based theories of sandwich plates with soft core. *J.Eng.Math*. **25**(1991) 223-241

- **1D modelling of deformation of bars**

T. Lewiński, S. Czarnecki, On incorporating warping effects due to transverse shear and torsion into the theories of straight elastic bars, *Acta Mechanica*, **232**(2021), no 1, 247-282,

S. Czarnecki, T. Lewiński, Vibrations of bars including transverse shear deformations and warping due to torsion, *Arch.Civil.Eng*. **67**, no 2, 355-381, 2021

R. Czubacki, T. Lewiński, Application of the Rayleigh quotient method in the analysis of stability of straight elastic bars, Archives of Civil Engineering, **70**, no 4, 2024, 85-98,

Papers on homogenization of stiffnesses of plates and shells of periodic structure

T. Lewiński, Effective models of composite periodic plates.
I- Asymptotic solution. *Int.J.Solids Structures* **27**(1991) 1155-1172;
II- Simplifications due to symmetries. ibidem 1173-1184.
III- Two-dimensional approaches .ibidem 1185-1203

T. Lewiński, Effective stiffnesses of cylindrical shells of periodic structure, *Mech.Res.Comm.* **18**(1991) 245-252

T. Lewiński, Homogenizing stiffnesses of plates with periodic structure.
Int.J.Solids.Structures **29**(1992) 309-326

T. Lewiński, St. Kucharski, A model with length scales for composites with periodic structure. Steady state heat conduction problem. *Comput. Mech.* **9**(1992) 249-265

T. Lewiński, Effective stiffnesses of transversely nonhomogeneous plates with unidirectional periodic structure, *Int.J.Solids Structures* **32**(1995) No 22, 3261-3287

Papers on optimization of structural topology

Optimal trusses

S. Czarnecki, T. Lewiński, Trusses of the smallest total potential energy, Bulletin of the Polish Academy of Sciences: Technical Sciences, **73**(1), 2025, Article number: e151673

Michell structures

T. Lewiński, Michell structures formed on surfaces of revolution. *Structural and Multidisciplinary Optimization*. **28**(2004) 20-30.

C. Graczykowski, T. Lewiński, Michell cantilevers constructed within trapezoidal domains - Part I: Geometry of Hencky nets. *Structural and Multidisciplinary Optimization,* **32***(*2006) No 5, 347-368.

C.Graczykowski, T. Lewiński, Michell cantilevers constructed within trapezoidal domains - Part II: Virtual displacement fields, *Structural and Multidisciplinary Optimization* **32***(*2006), No 6, 463-471.

C.Graczykowski, T. Lewiński, Michell cantilevers constructed within trapezoidal domains - Part III: Force fields, *Structural and Multidisciplinary Optimization,* **33**(2007), No 1, 27-46.

C.Graczykowski, T. Lewiński, Michell cantilevers constructed within trapezoidal domains - Part IV: Complete exact solutions of selected optimal designs and their approximations by trusses of finite number of joints, *Structural and Multidisciplinary Optimization,* **33***(* 2007), No 2, 113-129.

T.Sokół, T.Lewiński, On the solution of the three forces problem and its application to optimal designing of a class of symmetric plane frameworks of least weight, *Structural and Multidisciplinary Optimization* **42**(2010) no 6, 835-853.

T.Lewiński, G.I.N.Rozvany. T.Sokół, K.Bołbotowski, Exact analytical solutions for some popular benchmark problems in topology optimization III: L-shaped domains revisited. Structural and Multidisciplinary Optimization, **47**(2013), no 6, 937-942.

T.Sokół, T.Lewiński, Simply supported Michell trusses generated by a lateral point load. *Structural and Multidisciplinary Optimization.* **54**(2016) no5, pp. 1209-1224

C. Graczykowski, T. Lewiński, Applications of Michell's theory in design of high-rise buildings, large-scale roofs and long-span bridges, Computer Assisted Methods in Engineering and Science (CAMES) **27**(2-3) 2020, pp 133-154

see the book

T. Lewiński, T. Sokół, C. Graczykowski, Michell Structures, Springer, Cham, 569 pp, 2019.

Two-component and multi-component design:

T.Lewiński, A.M.Othman, On attainability of Hashin-Shtrikman bounds by iterative hexagonal layering.Plane elasticity problem. *Arch.Mech*. **49** (1997) No 3, 513-523

K. Kolanek, T. Lewiński, Circular and annular two-phase plates of minimal compliance, *Computer Assisted Mechanics and Engineering Sciences*. **10** (2003) No 2, *pp.*177-199

G. Dzierżanowski, T. Lewiński, Layout optimization of two isotropic materials in elastic shells, *J.Theor.Appl.Mech*. **41**(2003) No 3, 459-472

S. Czarnecki, M. Kursa, T. Lewiński, Sandwich plates of minimal compliance. *Computer Methods in Applied Mechanics and Engineering*, **197**(2008) 4866-4881.

T. Lewiński, On Cherkaev-Lurie-Milton theorem in the plane problems of linear elasticity, *Archives of Mechanics*, **74,** no 4, 2022, p 319-339, DOI: 10.24423/aom.4083

Free material design: anisotropic-, isotropic-, cubic- and fiber – material design and recovery of the underlying microstructure

S. Czarnecki, T.Lewiński, A stress-based formulation of the free material design problem with the trace constraint and single loading condition. *Bull.Polish Ac. Sciences. Tech.Sci.* no 2., **60**(2012) , pp.191-204

G. Dzierżanowski, T. Lewiński, Compliance minimization of thin plates made of material with predefined Kelvin moduli. Part I. Solving the local optimization problem, *Arch.Mech*. **64**(2012) no 1, 21-40.
Part II. The effective boundary value problem and exemplary solutions, *Arch.Mech*. **64**(2012), no 2, 111-135.

S.Czarnecki, T.Lewiński, On minimum compliance problems of thin elastic plates of varying thickness, Structural and Multidisciplinary Optimization, **48**(2013) no 1, 17-31.

S. Czarnecki, T.Lewiński, A stress-based formulation of the free material design problem with the trace constraint and multiple load conditions. *Structural and Multidisciplinary Optimization,* **49**(2014) no 5, 707-731.

R. Czubacki, T.Lewiński, Topology optimization of spatial continuum structures made of non-homogeneous material of cubic symmetry, Journal of Mechanics of Materials and Structures, **10**, 519-535, 2015.

S. Czarnecki, T. Lewiński, Pareto optimal design of non-homogeneous isotropic material properties for the multiple loading conditions, Physica Status Solidi B: Basic Solid State Physics. 2017, **254**, 1600821, 1-14.

S. Czarnecki, T. Łukasiak, T. Lewiński, The Isotropic and Cubic Material Designs. Recovery of the Underlying Microstructures Appearing in the Least Compliant Continuum Bodies, Materials 2017, **10**(10), 1137.

K. Bołbotowski, T. Lewiński, Setting the free material design problem through the methods of optimal mass distribution. *Calculus of Variations and Partial Differential Equations*, **61,** 76 (2022) 39 pp.

K. Bołbotowski, S. Czarnecki, T. Lewiński, The isotropic material design methods with the cost expressed by the L^p-norm. 46 pp. 2025. http://arxiv.org/abs/2502.03161

Optimal: archgrids

R. Czubacki, T. Lewiński, Optimal archgrids: a variational setting, Structural and Multidisciplinary Optimization, (2020) **62**, no 3, pp 1371-1393.

PIOTR KOWALCZYK

Papers joint with J.J. Telega and inspired by J.J. Telega

- P. Kowalczyk: Shape sensitivity in the finite element analysis of bone-implant system. In: J. Awrejcewicz, M. Ciach, M. Kleiber (eds.), Proceedings of the Conference „*Biomechanics – Modelling, Computational Methods, Experiments and Biomedical Application,* Łódź*,* Dec. 7-8*,* 1998*,* pp. 127–132.

- P. Kowalczyk, J.J. Telega: Numerical approach to shape sensitivity analysis of femoral implants. *Acta of Bioengineering and Biomechanics* **1**: 47–51, 1999.

- P. Kowalczyk, J. Kowalczewski, P. Małdyk, C. Michalak, J.J. Telega: Optymalizacja kształtu części udowej endoprotezy stawu biodrowego metodą elementów skończonych. *Chirurgia Narządow Ruchu i Ortopedia Polska* **65**(5): 511–517, 2000.

- P. Kowalczyk: Design optimization of cementless femoral hip prostheses using finite element analysis. *Trans. ASME, Journal of Biomechanical Engineering*, **123**: 396–402, 2001. DOI: 10.1115/1.1392311

- P. Kowalczyk: Influence of bone anisotropy on stress distribution and optimum shape of cementless femoral implants. *Engineering Transactions*, **51**: 195–214, 2003.

- P. Kowalczyk: Elastic properties of cancellous bone derived from finite element models of parameterized microstructure cells. *Journal of Biomechanics*, **36**: 961–972, 2003. DOI: 10.1016/S0021-9290(03)00065-4

- P. Kowalczyk: Elastic properties of cancellous bone derived from finite element models of parameterized microstructure cells. *Journal of Biomechanics*, **36**: 961–972, 2003. DOI: 10.1016/S0021-9290(03)00065-4

- P. Kowalczyk: Simulation of orthotropic microstructure remodelling of cancellous bone. *Journal of Biomechanics*, **43**: 563–569, 2010. DOI: 10.1016/j.jbiomech.2009.09.045