

Publications List

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Contents

1	Categorized List of Publications	2
1.1	Books, Edited Volumes, etc	2
1.2	Papers in Archival Refereed Journals	5
1.3	Refereed Conference Proceedings	24
1.4	Contributions to the Community and Education	41
1.5	Refereed Reports and Theses	43
1.6	Technical Reports and Reports to Industry	44
1.7	Invited Lectures, Other Conference Contributions	47
1.8	Some Invited Departmental and Colloquia Presentations, etc	65
1.9	Abbreviations for Categories	68
2	Publications Summary	68
2.1	Summary in Chronological Order	68
2.2	Publications Summary Categorized	69

1 Categorized List of Publications

1.1 Books, Edited Volumes and Encyclopedic Entries

1. [\[EB-34\]](#) Mathematical and Computational Approaches in Advancing Modern Science and Engineering, Belair, J., Frigaard, I.A., Kunze, H., Makarov, R., Melnik, R., Spiteri, R.J. (Eds.), Springer, 806 pages, ISBN-10: 3319303775, ISBN-13: 978-3319303772, 2016.
2. [\[EB-33\]](#) Mathematical and Computational Modeling: With Applications in Natural and Social Sciences, Engineering, and the Arts, R. Melnik (Ed.), Wiley, 336 pages, ISBN-10: 1118853989, ISBN-13: 978-1118853986, 2015.
3. [\[EB-32\]](#) Interdisciplinary Topics in Applied Mathematics, Modeling and Computational Science, Cojocaru, M., Kotsireas, I., Makarov, R., Melnik, R., and Shodiev, H., Springer Proceedings in Mathematics and Statistics, Vol. 117, 555 pages, 2015.
4. [\[EB-31\]](#) Transient thermoelastic waves and dynamic problems, generation and propagation, Melnik, R. V.N. (Section Ed.), Encyclopedia of Thermal Stresses, Editor-in-Chief Hetnarski, R., Springer, 2014, LXXXIII, 6643 pages, in 11 volumes, ISBN: 978-94-007-2738-0, 2014.
5. [\[EB-30\]](#) Soliton-like thermoelastic waves, Strunin, D., Melnik, R., Encyclopedia of Thermal Stresses, Editor-in-Chief Hetnarski, R., Springer, ISBN: 978-94-007-2738-0, 4433- 4438, 2014.

6. [EB-29] *Advances in Applied Mathematics, Mathematical Modeling and Computational Science*, Field Institute Communications Volume, Eds: Melnik, R.V.N. and Kotsireas, I., Vol. 66, 251 pages, ISBN 978-1-4614-5388-8, Springer, 2013.
7. [EB-28] *Computational Methods for Hyperbolic Problems*, Special Issue of the *Journal of Computational Science* (Ed. with Jae-Hun Jun, I. Kotsireas, and A. Tesdall), Vol. 4, Issues 1 -2, 124 pages, 2013.
8. [EB-27] *Mathematics and Life Sciences*, De Gruyter, Eds. Antoniouk, A. and Melnik, R.V.N., De Gruyter Book Series in Mathematics and Life Sciences, Vol. 1, 328 pages, ISBN-13: 978-3110273724, De Gruyter, 2012.
9. [EB-26] *Advances in Mathematical and Computational Methods: Addressing Modern Challenges of Science, Technology, and Society*, Eds. Kotsireas, I. and Melnik, R., West, B., American Institute of Physics Vol. 1368, 2011 (ISBN 978-0-7354-0928-6, ISSN 0094-243X); as 2012 edition by AIP: 344 pages, ISBN-10: 0735409285, ISBN-13: 978-0735409286.
10. [EB-25] *Coupled effects in low-dimensional nanostructures and multiphysics modeling*, Melnik, R.V.N., *Encyclopedia of Nanoscience and Nanotechnology*, Editor Nawla, H.S., Vol. 12, 517–531, American Scientific Publishers, ISBN 1-58883-161-2, 2011.
11. [EB-24] *Multiple scales and coupled effects in modelling low dimensional semiconductor nanostructures: Between atomistic and continuum worlds*, Melnik, R.V.N., in *Encyclopedia of Complexity and Systems Science*, Meyers, R. (Ed.), Springer, Hardcover ISBN: 978-0-387-75888-6, 2009.
12. [EB-23] *Special Issue on Mathematical and Computational Models for Transport and Coupled Processes in Micro- and Nanotechnology*, Eds: Melnik, R.V.N., Povitsky, A. and Srivastava, D., *Journal of the Nanoscience and Nanotechnology*, 8 (7), 2008.
13. [EB-22] *Special Issue on Physics-Based Mathematical Models of Low-Dimensional Semiconductor Nanostructures: Analysis and Computation*, Eds. Lew Yan Voon, L.C., Melnik, R.V.N., and Willatzen, M., *Journal of Physics: CS*, Vol. 107, 2008.
 - [EB-21] *SIAM News - Mathematical Models and Computational Methods for Nano- and Bio-technologies: This item is in the Contributions to the Community & Educational Books Category.*
14. [EB-20] *Special Issue on Mathematics for Industry, Science, and Technology*, Eds: R.V.N. Melnik, A. Soulemaini and F. Voss) *Int. Journal for Computational Methods in Sciences and Engineering*, 8(2), 2007.

15. [EB-19] Special Issue on Computational Nanoscience¹, Guest Editor with A. Povitsky, *Journal of Theoretical and Computational Nanoscience*, 3(4) 2006.
16. [EB-18] Special Issue on Methods of Mathematical and Computational Physics for Industry, Science, and Technology, Eds. Melnik, RVN and Voss, F., *Journal of Physics: Conf. Ser.*, 52, 2006.
17. [EB-17] Nonlinear Analysis, Special Issue: Modelling, control and analysis of coupled problems, processes and phenomena (the forth world congress of nonlinear analysts), Eds. Melnik, RVN, Smith, R., Shillor, M., 63(5-7), 2005.
18. [EB-16] Special Issue on Wave Phenomena in Physics and Engineering: New Models, Algorithms, and Applications, (Editor, with A. Povitsky), *Mathematics and Computers in Simulation* **65(4-5)**, 2004, ISSN 0378-4754, 248 pages.
 - [EB-15] Mathematics for Industry in Denmark: *This item is in the Contributions to the Community & Educational Books Category.*
19. [EB-14] New Methods in Applied and Computational Mathematics (NEMACOM98) (Editor with S. Oliveira and D. Stewart), *Proc. of the Centre for Mathematics and its Applications, ANU*, **38**, 2000, ISBN 0-7315-5202-4, 106 pages.
 - [EB-13], [EB-12], [EB-11], [EB-10], [EB-9]: *These items are in the Contributions to the Community & Educational Books Category.*
20. [EB-8] *Difference Schemes for Modelling Nonlocally Coupled Processes in Semiconductor Devices*, @KPI Academic Publishers (BN 4-5732-95), 1995, 64 pages.
21. [EB-7] *Foundations of the Theory of Computational Algorithms* (with Kalnibolotsky, Y.M.), @UMK/VO Academic Publishers, 1992, 2nd edition, ISBN 5-7763-0503-9, 227 pages.
 - [EB-6], [EB-5], [EB-4], [EB-3]: *These items are in the Contributions to the Community & Educational Books Category.*
22. [EB-2] *Foundations of the Theory of Computational Algorithms: Functions Approximation, Numerical Differentiation and Integration, Linear Algebra* (with Kalnibolotsky, Y.M.), @UMK/VO Academic Publishers, 1991, ISBN 5-7763-0502-0, 283 pages.
 - [EB-1]: *This item is in the Contributions to the Community & Educational Books Category.*

¹Based on the Workshop at the 3rd M.I.T. Conference on Computational Fluid and Solid Mechanics

1.2 Papers in Archival Refereed Journals

23. [EJ-226] Corrections to finite-size scaling in the 3D Ising model based on non-perturbative approaches and Monte Carlo simulations (with J. Kaupuzs), *Int. J. Mod. Phys. C.*, to appear 2017.
24. [EJ-225] Modal analysis of the gyroscopic continua: comparison of continuous and discretized models, Yang, X., Yang, S., Qian, Y., Zhang, W. and Melnik, R. V. N., *Journal of Applied Mechanics - Transactions of the ASME (American Society of Mechanical Engineers)*, 83 (8), 084502, 2016.
25. [EJ-224] Hidden electronic rule in the "cluster-plus-gluon-atom" model, Du, J., Dong, C., Melnik, R. (Melnik, R., Kawazoe, Y. and Wen, B., *Scientific Reports*, 6, 33672, 2016.
26. [EJ-223] A comparative analysis of modal motions for the gyroscopic and non-gyroscopic two degree-of-freedom conservative systems, Yang, X., An, H., Qian, Y., Zhang, W., and Melnik, R. V. N., *Journal of Sound and Vibration*, 385, 300-309, 2016.
27. [EJ-222] On the Perturbation Methods for Vibration Analysis of Linear Time-Varying Systems, Yang, X., Liu, M., Zhang, W., Qian, Y., Melnik, R. V. N., *International Journal of Applied Mechanics*, 8, 1650035, [dx.doi.org/10.1142/S1758825116500356](https://doi.org/10.1142/S1758825116500356) , 2016.
28. [EJ-221] Pseudospin lifetime in relaxed-shape armchair graphene nanoribbons due to in-plane phonon modes (with S. Prabhakar and L. Bonilla), *Physical Review B*, 93 (11), 115417, 2016.
29. [EJ-220] Novel three dimensional topological nodal line semimetallic carbon, Cheng, Y., Du, J., Melnik, R., Kawazoe, Y., and Wen, B., *Carbon*, 98, 468–473, 2016.
30. [EJ-219] Effect of Aspect Ratio and Boundary Conditions in Modeling Shape Memory Alloy Nanostructures with 3D Coupled Dynamic Phase-Field Theories, Dhote, R., Gomez, H., Melnik, R., and Zu, J., *Mathematical Problems in Engineering*, 2016, 3647470, [dx.doi.org/10.1155/2016/3647470](https://doi.org/10.1155/2016/3647470), 2016.
31. [EJ-218] Electrochemical Potential Derived from Atomic Cluster Structures, Du, J., Xiao, D., Wen, B., Melnik, R., and Kawazoe, Y., *Journal of Physical Chemistry Letters*, 7 (3), 567–571, 2016.
32. [EJ-217] Corrections to finite-size scaling in the ϕ^4 model on square lattices, Kaupuzs, J., Melnik, R. V. N., and Rimshans, J., *International Journal of Modern Physics C (Computational Physics and Physical Computation)*, 27 (9), 1650108, 2016.

33. [EJ-216] Energetics and invariants of axially deploying beams with uniform velocity, Yang, X., Zhang, W., and Melnik, R. V. N., *AIAA Journal* (American Institute of Aeronautics and Astronautics), 54 (7), 2183-2189, 2016.
34. [EJ-215] Topology of Innovation Spaces in the Knowledge Networks Emerging through Questions-And-Answers, Andjelkovic, M., Tadic, B., Dankulov, M. M., Rajkovic, M., and Melnik, R., *PLOS ONE*, 11 (5), e0154655, 2016.
35. [EJ-214] Invariant and energy analysis of an axially retracting beam, Yang, X., Liu, M., Zhang, W., and Melnik, R. V. N., *C. Journal of Aeronautics*, 29 (4), 952-961, 2016.
36. [EJ-213] A differential algebraic approach for the modeling of polycrystalline ferromagnetic hysteresis with minor loops and frequency dependence, Wang, D., Wang, L., and Melnik, R., *Journal of Magnetism and Magnetic Materials*, 410, 144-149, 2016.
37. [EJ-212] Tuning g-factor of electrons through spin-orbit coupling GaAs/AlGaAs conical quantum dots, Prabhakar, S. and Melnik, R., *International Journal of Modern Physics B*, 30 (13), 1642003, 2016.
38. [EJ-211] Weak phonon scattering effect of twin boundaries on thermal transmission, Dong, H., Xiao, J., Melnik, R., and Wen, B., *Scientific Reports*, 6, 19575, 2016.
39. [EJ-210] Relaxation of electron-hole spins in strained graphene nanoribbons, Prabhakar, S. and Melnik, R., *Journal of Physics - Condensed Matter*, 27 (43), 435801, 2015.
40. [EJ-209] Electric field control of spin splitting in III-V semiconductor quantum dots without magnetic field, Prabhakar, S. and Melnik, R., *European Physical Journal B*, 88 (10), 273, 2015.
41. [EJ-208] Relaxed Shape of Graphene Sheet Due to Ripples, Prabhakar, S., Melnik, R., Bonilla, L., and Badu, S., *Quantum Matter*, 4 (4), 305–307, 2015.
42. [EJ-207] Mechanical and thermal properties of gamma-Mg₂SiO₄ under high temperature and high pressure conditions such as in mantle: A first principles study, Feng, X., Xiao, J., Melnik, R., Kawazoe, Y., and Wen, B., *Journal of Chemical Physics*, 143 (10), 104503, 2015.
43. [EJ-206] A Preisach-type model based on differential operators for rate-dependent hysteretic dynamics (with D. Wang and L. Wang), *Physica B - Condensed Matter*, 470, 102–106, 2015.
44. [EJ-205] The dynamics of meaningful social interactions and the emergence of collective knowledge, Dankulov, M., Melnik, R., and Tadic, B., *Scientific Reports*, 5, 12197, 2015.

45. [EJ-204] Shape Memory Alloy Nanostructures with Coupled Dynamic Thermo-Mechanical Effects Dhote, R. P., Gomez, H., Melnik, R. V. N., and Zu, J., *Computer Physics Communications* (Elsevier), 192, 4853, 2015.
46. [EJ-203] 3D Coupled Thermo-Mechanical Phase-Field Modeling of Shape Memory Alloy Dynamics via Isogeometric Analysis, Dhote, R. P., Gomez, H., Melnik, R. V. N., and Zu, J., *Computers and Structures* (Elsevier), 154, 4858, 2015.
47. [EJ-202] Cluster characteristics and physical properties of binary AlZr intermetallic compounds from first principles studies, Du, J., Wen, B., Melnik, R., and Kawazoe, Y., *Computational Materials Science*, 103, 170-178, 2015.
48. [EJ-201] A three-dimensional non-isothermal Ginzburg-Landau phase-field model for shape memory alloys, Dhote, R., Fabrizio, M., Melnik, R., and Zu, J., *Modelling and Simulation in Materials Science and Engineering*, 22 (8), 085011, 2014.
49. [EJ-200] Mechanism of hydrogen production via water splitting on 3C-SiC's different surfaces: A first-principles study, Du, J., Wen, B., and Melnik, R., *Computational Materials Science*, 95, 451-455, 2014.
50. [EJ-199] Thermoelectromechanical effects in relaxed-shape graphene and band structures of graphene quantum dots, Prabhakar, S., Melnik, R., Bonilla, L. L., and Badu, S., *Physical Review B*, 90 (20), 205418, 2014.
51. [EJ-198] Relative importance of grain boundaries and size effects in thermal conductivity of nanocrystalline materials, Dong, H., Wen, B. and Melnik, R., *Scientific Reports*, 4, 7037, 2014.
52. [EJ-197] Modeling of RNA nanotubes using molecular dynamics simulation, Badu, S. R., Melnik, R., Paliy, M., Prabhakar, S., Sebetci, A., and Shapiro, B. A., *European Biophysics Journal with Biophysics Letters*, 43 (10-11), 555-564, 2014.
53. [EJ-196] First-principles studies on structural, mechanical, thermodynamic and electronic properties of Ni-Zr intermetallic compounds, Du, J., Wen, B., Melnik, R., and Y. Kawazoe, *Intermetallics*, 54, 110-119, 2014.
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55. [EJ-194] Gate control of Berry phase in III-V semiconductor quantum dots, Prabhakar, S., Melnik, R., and Bonilla, L., *Physical Review B*, 89 (24), 245310, 2014.
56. [EJ-193] Geometric spin manipulation in semiconductor quantum dots, Prabhakar, S., Melnik, R., and Inomata, A., *Applied Physics Letters*, 104, 142411, 2014.

57. [[EJ-192](#)] Can twins enhance the elastic stiffness of face-centered-cubic metals?, Shen, D., Du, J., Melnik, R., and Wen, B., *Computational Materials Science*, 89, 2429, 2014.
58. [[EJ-191](#)] Phase stability limit of c-BN under hydrostatic and non-hydrostatic pressure conditions, Xiao, J., Du, J., Wen, B., Melnik, R., Kawazoe, Y., and Zhang, X., *Journal of Chemical Physics*, 140(16), 164704, 2014.
59. [[EJ-190](#)] Isogeometric analysis of a dynamic thermo-mechanical phase-field model applied to shape memory alloys, Dhote, R. P., Gomez, H., Melnik, R. V. N., and Zu, J., *Computational Mechanics*, 53 (6), 1235 - 1250, 2014.
60. [[EJ-189](#)] Dynamic multi-axial behavior of shape memory alloy nanowires with coupled thermo-mechanical phase-field models, Dhote, R., Melnik, R., and Zu, J., *Meccanica*, 49 (7), 1561 - 1575, 2014.
61. [[EJ-188](#)] Correlation functions, universal ratios and Goldstone mode singularities in n-vector models, Kaupuzs, J., Melnik, R. V. N., and Rimshans, J., *Communications in Computational Physics*, 15 (5), 1407 - 1430, 2014.
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64. [[EJ-185](#)] Spin echo dynamics under an applied drift field in graphene nanoribbon superlattices, Prabhakar, S., Melnik, R., Bonilla, L. L., Reynolds, J. E., *Applied Physics Letters*, 103 (23), 233112, 2013.
65. [[EJ-184](#)] Electrical control of phonon-mediated spin relaxation rate in semiconductor quantum dots: Rashba versus Dresselhaus spin-orbit coupling, Prabhakar, S., Melnik, R., Bonilla, L. L., *Physical Review B*, 87 (23), 235202, 2013.
66. [[EJ-183](#)] Coupled multiphysics, barrier localization, and critical radius effects in embedded nanowire superlattices, Prabhakar, S., Melnik, R. and Bonilla, L. L., *Journal of Applied Physics*, 113 (24), 244306, 2013.
67. [[EJ-182](#)] Transport in semiconductor nanowire superlattices described by coupled quantum mechanical and kinetic models, Alvaro, M., Bonilla, L. L., Carretero, M., Melnik, R. V. N., Prabhakar, S., *Journal of Physics - Condensed Matter*, 25 (33), 335301, 2013.

68. [EJ-181] Spin transition rates in nanowire superlattices: Rashba spin-orbit coupling effects, Prabhakar, S., Melnik, R. and Bonilla, L. L., *Journal of Physics D - Applied Physics*, 46 (26), 265302, 2013.
69. [EJ-180] Scaling regimes and the singularity of specific heat in the 3D Ising model, Kaupuzs, J., Melnik, R. V. N. and Rimsans, J., *Communications in Computational Physics*, 14 (2), 355-369, 2013.
70. [EJ-179] Temperature and pressure dependent geometry optimization and elastic constant calculations for arbitrary symmetry crystals: applications to $MgSiO_3$ perovskites, Wen, B., Shao, T., Melnik, R., Kawazoe, Y., Tian, Y., *Journal of Applied Physics*, 113 (10), 103501, 2013.
71. [EJ-178] Coupled magneto-thermo-electromechanical effects and electronic properties of quantum dots, Prabhakar, S., Melnik, R. V. N., Neittaanmaki, P., Tiihonen, T., *Journal of Computational and Theoretical Nanoscience*, 10 (3), 534-547, 2013.
72. [EJ-177] Hysteresis phenomena in shape memory alloys by non-isothermal Ginzburg-Landau models, Dhote, R. P., Fabrizio, M., Melnik, R., and Zu, J., *Communications in Nonlinear Science and Numerical Simulation*, 18 (9), 2549-2561, 2013.
73. [EJ-176] Multidisciplinary approaches in theory, applications and modeling of nanoscale systems, Melnik, R. V. N. (Editorial), *Nanoscale Systems MMTA*, 2, 1 - 9, 2013.
74. [EJ-175] First principles studies on the structural, elastic, electronic properties and heats of formation of Mg-X (X=Ca, Sr, Ba) intermetallics, Yang, Z., Du, J., Wen, B., Hu, C., Melnik, R., *Intermetallics*, 32, 156-161, 2013.
75. [EJ-174] *Computational Methods for Hyperbolic Problems: Preface*, A. Tesdall, J.-H. Jung, I. Kotsireas, R. Melnik (Editorial), *Journal of Computational Science*, 4 (12), 1 - 2, 2013.
76. [EJ-173] Computational aspects of Monte-Carlo simulations of the first passage time for multivariate transformed Brownian motions with jumps, Zhang, D. and Melnik, R. V. N., *International Journal of Computational Methods*, 10 (5), 1350026, 2013.
77. [EJ-172] Molecular Dynamics Study on ZnO Nanowires Mechanical Properties: Strain Rate, Temperature and Size Dependent Effects, Guo, J., Wen, B. and Melnik, R., *Journal of Computational and Theoretical Nanoscience*, 9 (12), 2138-2143, 2012.
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79. [EJ-170] Temperature dependent elastic constants and ultimate strength of graphene and graphyne, Shao, T., Wen, B., Melnik, R. Yao, S., Kawazoe, Y., Tian, Y., Journal of Chemical Physics, 137 (19), 194901, 2012.
80. [EJ-169] Coupled electromechanical effects in wurtzite quantum dots with wetting layers in gate controlled electric fields: The multiband case, Prabhakar, S., Melnik, R. V. N., Neittaanmaki, P., Tiihonen, T., Physica E: Low-Dimensional Systems & Nanostructures, 46, 97-104, 2012.
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82. [EJ-167] Relative stability of nanosized β - C_3N_4 and graphitic C_3N_4 from first principles calculations, Luo, J., Wen, B., Melnik, R., Physica E: Low-Dimensional Systems & Nanostructures, 45, 190-193, 2012.
83. [EJ-166] Dynamic thermo-mechanical coupling and size effects in finite shape memory alloy nanostructures, Dhote, R. P., Melnik, R. V.N., Zu, J., Computational Materials Science, 63, 105–117, 2012.
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1.4 Textbooks, Contributions to the Community and STEM Education

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1.5 Refereed Reports and Theses

[Scientific Roots]⁷

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7

- My scientific genealogy roots go to the “Luzitania” via M.N. Mosklakov, A.A. Samarskii, A.N. Tikhonov, and P.S. Aleksandrov (A. Tikhonov, L. Pontryagin, A. Kurosh were Alexandrov's students). Pavel Aleksandrov was amongst the first students of N.N. Luzin; other students of N.N. Luzin included P. S. Urysohn, A. N. Kolmogorov, M. Lavrentjev, and many other prominent scientists and mathematicians.
- Through the “Luzitania”, my scientific ancestors include Weierstrass, Gauss, and others interesting folks. You can learn more about the “Luzitania” at this page.

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416. [RR-2] Analysis of Coupled Electroelastic Oscillations of Piezoceramic Cylinders with Radial Polarization (with Moskalkov, M.N.), *Refereed Report of the Journal of Computational Mathematics and Mathematical Physics, USSR Research Institute of Scientific Information, N4331-V88 (01.06.88, Moscow), 1988, pp.1-21.*
417. [TH-1] Difference Schemes for Coupled Problems of Dynamic Thermoelasticity, *M.Sc. Thesis, Numerical Methods of Mathematical Physics Department, Kiev State University, 1985, pp.1-122.*
418. [RR-1] Difference Schemes for Stress-Temperature Computation in Coupled Problems of Dynamic Thermoelasticity (with Moskalkov, M.N.), *Research Institute of Scientific and Technical Information, Refereed Report Series N2008-Uk85 (02.09.85, Kiev), 1985, pp.1-20.*

1.6 Technical Reports, Working Papers, and Reports to Industry

419. [TR-30] Multiband Hamiltonians of the Luttinger-Kohn theory and ellipticity requirements (with D. Synik and S. Patil), arXiv:1004.4152v1 [cond-mat.mtrl-sci].
420. [TR-29] Cylindrical coordinates representation for valence-band and Kane Hamiltonians for wurtzite and zinc-blende heterostructures (with E. Takhtamirov), arXiv:1107.1285v1 [cond-mat.mtrl-sci], 2011.
421. [TR-28] Nonlinear dimension reduction for microarray data (with D. Aruliah, C. Bowman, G. Fan, S. Shontz, S. Wang, and J. Zhu), *Proceedings of the First Fields-MITACS*

Industrial Problems Workshop, August 14-18, 2006, Eds. D.A. Aruliah and G.M. Lewis, pp. 1–15, 2006.

422. [TR-27] Space-Time Dependent Control and Approximations to Hamilton-Jacobi-Bellman Equations, *The Mathematics Preprint Server, MPS: Applied Mathematics/0204005, 2002, 13 pages.*
423. [TR-26] Hysteresis Effects and Dynamics of Phase Transitions in Shape Memory Materials with Differential-Algebraic Models (with Roberts, A.J. and Thomas, K.A.), *The Mathematics Preprint Server, MPS: Applied Mathematics/0204004, 2002, 18 pages.*
424. [TR-25] Thermal Degradation and Spiking Effects in Biocompatible Polymers: Coupled Dynamic Models and Computational Experiments, *The Mathematics Preprint Server, MPS: Applied Mathematics/0204004, 2002, 26 pages.*
425. [TR-24] Modelling Navigation Units Based on Three Double-Axis Accelerometers (with Willatzen, M. and Voss, F.), *Report to PointStar, Jutland Technology Park, August, 2001, 14 pages.*
426. [TR-23] Modelling, Simulation, and Control of Polymer and Composite Systems. Part 1: Distance Geometry Algorithms in Molecular Modelling (with A. Uhlherr), *Technical Report No. 2000/79, CSIRO Mathematical and Information Sciences, 2000, 22 pages.*
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431. [TR-18] Modelling Dynamics of SMA via Computer Algebra (with A.J. Roberts and K. A. Thomas), *Technical Report Series, Department of Mathematics and Computing, University of Southern Queensland, SC-MC-9904, 1999, 12 pages.*

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433. [TR-16] Modelling Dynamics of Piezoelectric Solids in Two Dimensions (with Melnik, K.N.), *Technical Report Series, Department of Mathematics and Computing, University of Southern Queensland, SC-MC-9708, 1997*, 20 pages.
434. [TR-15] Optimal-By-Order Quadrature Formulae for Fast Oscillatory Functions with Inaccurately Given A Priori Information (with Melnik, K.N.), *Technical Report Series of the Department of Mathematics and Computing, University of Southern Queensland, SC-MC-9810, 1998*, 28 pages.
435. [TR-14] Analysis of Convergence of the Operator-Difference Scheme for Solution of a Nonstationary Problem Arising from Coupled Field Theory, *Technical Report Series, School of Mathematics, University of South Australia, TN 1996/5*, 17 pages.
436. [TR-13] Optimal Probabilistic Trajectories of Deterministic Finite State Machines, *Technical Report Series, CIAM, School of Mathematics, University of South Australia, TN 1996/15*, 25 pages.
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438. [TR-11] On Consistent Regularities of Control and Value Functions, *Technical Report Series, CIAM, School of Mathematics, University of South Australia, TN 1996/16*, 24 pages.
439. [TR-10] Mathematical Models for Climate as a Link between Coupled Physical Processes and Computational Decoupling (published), *Technical Report Series, CIAM, School of Mathematics, University of South Australia, TR 1997/1*, 37 pages.
440. [TR-9] User's Guide to SCIMU: A Package for Numerical Simulation of Semiconductor Devices with the Quasi-Hydrodynamic Model (with Hao He), *Technical Report Series of the Department of Mathematics and Computing, University of Southern Queensland, SC-MC 9903, 1999*, 75 pages.
441. [TR-8] Application of ALTPACK to the Solution of Nonlinear PDEs with Fast Changing Coefficients, *Technical Report Series of the Department of Mathematics and Computing, University of Southern Queensland, SC-MC-06, 1997*, 25 pages.

442. [TR-7] Discrete Models of Coupled Dynamic Thermoelasticity for Stress-Temperature Formulations, *Technical Report Series of the Department of Mathematics and Computing, University of Southern Queensland, SC-MC-03, 1997, 20 pages.*
443. [TR-6] Modelling Nonlocal Processes in Semiconductor Devices with Exponential Difference Schemes. Part 1: Relaxation Time Approximations (with Hao He), *Technical Report Series of the Department of Mathematics and Computing, University of Southern Queensland, SC-MC-9822, 1998, 29 pages.*
444. [TR-5] Modelling Nonlocal Processes in Semiconductor Devices with Exponential Difference Schemes. Part 2: Numerical Methods and Computational Experiments (with Hao He), *Technical Report Series of the Department of Mathematics and Computing, University of Southern Queensland, SC-MC 9832, 1998, 26 pages.*
445. [TR-4] A Note on Optimal-By-Order Cubature Formulae for Fast Oscillatory Functions in Lipschitz Classes (with Melnik, K.N.), *Technical Report Series of the Department of Mathematics and Computing, University of Southern Queensland, SC-MC-9811, 1998, 13 pages.*
446. [TR-3] Courant-Friederichs-Lewy Type Stability Condition in Two-Dimensional Dynamic Electroelasticity (with Melnik, K.N.), *Technical Report Series, Department of Mathematics and Computing, University of Southern Queensland, SC-MC9707, 1997, 20 pages.*
447. [TR-2] Optimal-By-Accuracy and Optimal-By-Order Cubature Formulae in Interpolational Classes (with Melnik, K.N.), *Technical Report Series of the Department of Mathematics and Computing, University of Southern Queensland, SC-MC-9817, 1998, 32 pages.*
448. [TR-1] Optimal-By-Accuracy and Optimal-By-Order Cubature Formulae in Class $C_{1,L,N}$ (with Melnik, K.N.), *Technical Report Series of the Department of Mathematics and Computing, University of Southern Queensland, SC-MC-9821, 1998, 26 pages.*

1.7 Invited Lectures, Extended Abstracts, and Other Conference Contributions

449. [AC-10-2016] Coupled thermo-mechanical fields and graphene nanostructures: a multiphysics approach (with S. Prabhakar), Multiphysics-2016, Zurich, Switzerland, December 8, 2016.
450. [AC-9-2016] Geometric phases, spin-orbit coupling, and properties of quantum dots and nanoribbons (with S. Prabhakar), Invited Talk, International School and Conference on Nanoscience and Quantum Transport: NanoQT-2016, October 13, 2016.
451. [AC-8-2016] Non-perturbative approaches in nanoscience and corrections to finite-size scaling (with J. Kaupuzs), BIRS Workshop: Coupled Mathematical Models for Physical and Biological Nanoscale Systems and Their Applications, Banff International Research Station, September 1, 2016.

452. [AC-7-2016] Coupling electromechanical effect in the optical properties of nanostructures (with S. Prabhakar and L. L. Bonilla), BIRS Workshop: Coupled Mathematical Models for Physical and Biological Nanoscale Systems and Their Applications, Banff International Research Station, August 31, 2016.
453. [AC-6-2016] Modelling Biological Polymeric Nanostructures in Physiological Fluids: Focus on Ribonucleic Acid Nanotubes (with S. Badu and S. Prabhakar), The 3rd International Conference on Fluid Flow, Heat and Mass Transfer (FFHMT-16), University of Ottawa, May 2-3, 2016.
454. [AC-5-2016] Photosynthesis and electronic properties of Fenna-Mathews-Olson light harvesting complexes (with S. Badu and S. Prabhakar), Proceedings of Abstracts, IWBBIO 2016 International Work-Conference on Bioinformatics and Biomedical Engineering, p. 55, ISBN 978-84-16478-76-7, Granada, April 20 -22, 2016.
455. [AC-4-2016] Properties of graphene nanostructures accounting for thermomechanical effects (with S. Prabhakar), SPIE Photonics (Nanophotonics, Session: Quantum and Nonlinear Optics in Nanostructures), Brussels, April 4-7, 2016.
456. [AC-3-2016] Coupling, geometric phases, and properties of quantum dots: analytics and numerics for the Berry phase case (with S. Prabhakar), NanoSpain-2016, Logrono, March 15-18, 2016.
457. [AC-2-2016] Pseudospin dephasing in relaxed -shape armchair graphene nanoribbons (with S. Prabhakar and L. Bonilla), APS Meeting, Baltimore, Maryland, USA (Bulletin of the American Physical Society), March 14-18, 2016
458. [AC-1-2016] Control and high magnetic field sensitivity of geometric phases and phonon-mediated spin relaxation rates in quantum dots (with S. Prabhakar), PPHMF-8 (Physical Phenomena at High Magnetic Fields), Tallahassee, USA, January 6-9, 2016.
459. [AC-14-2015] Modern challenges in coupled quantum-continuum modeling and control of closed and dissipative systems (Keynote Lecture), TGM (Turing Gateway to Mathematics) Predictive Multiscale Materials Modelling, Isaac Newton Institute at the University of Cambridge, December 1- 4, 2015.
460. [AC-13-2015] Modeling and control of geometric phases in quantum dots for quantum information processing and security applications (Invited Talk), NATO Advanced Research Workshop: "Nanomaterials for Security" (NS-2015), Odessa, August 30 - September 3, 2015.
461. [AC-12-2015] Electromechanical effects and their influence in controlling susceptibility of quantum dots (Invited Talk), International Conference on Electron Correlation in Nanostructures, Odessa, September 3-6, 2015.
462. [AC-11-2015] Bandstructures of Graphene Nanostructures Affected by Thermomechanical Effects (Invited Talk), The 6th International Conference on Advanced Nanomaterials, Aveiro, Portugal, July 20-22, 2015.
463. [AC-10-2015] The Influence of Geometric Phases on Properties of Quantum Dots: A Berry Phase Example (with S. Prabhakar), ISMANAM-2015 (The 22nd International Symposium on Metastable, Amorphous and Nanostructured Materials), Book of Abstracts, Paris, July 13-17, 2015, 2015.
464. [AC-9-2015] Concentration Dependent Properties of RNA Nanoclusters in Salt-Based Solutions using Molecular Dynamics Simulation (with S. Badu and S. Prabhakar), The 2015 AMMCS-CAIMS Congress, Book of Abstracts, p. 246, ISBN: : 978-0-9918856-1-9, Waterloo, June 7-12, 2015.
465. [AC-8-2015] Feasibility of Single Electron Spin Gate Control in III-V Semiconductor Quantum Dots without Magnetic Field (with S. Prabhakar), The 2015 AMMCS-CAIMS Congress, Book of Abstracts, p. 202, ISBN: : 978-0-9918856-1-9, Waterloo, June 7-12, 2015.
466. [AC-7-2015] Coupled Rings in RNA Nanotubes and Properties of Biological Nanoclusters (with S. Badu and S. Prabhakar), The VI International Conference on Computational Methods for Coupled Problems in Science and Engineering, Coupled Problems, San Servolo, May 18-20, 2015.
467. [AC-6-2015] Dynamical Systems Approach to Multidimensional Phase Transformation Models and Their Applications, International Conference Dynamical Systems and Their Applications, Book of Abstracts, p. 39, June 22-26, 2015.
468. [AC-5-2015] Geometric Phases of Quantum Dots and Topological Designs of Nucleic Acid Nanostructures (with S. Badu and S. Prabhakar), Invited Talk, Nano-2015 (Nanotechnology and Nanomaterials), August 26-29, 2015.

469. [AC-4-2015] Transport Properties of RNA Nanotubes Using Molecular Dynamics Simulation (with S. Badu and S. Prabhakar), International Work-Conference on Bioinformatics and Biomedical Engineering, Granada, Spain, April 15-17, 2015 (Proceedings of Abstracts, ISBN 978-84-16292-16-5, p. 52)
470. [AC-3-2015] Controlling Susceptibilities of Quantum Dots Influenced by Electromechanical Effects (with S. Prabhakar), 2015 IEEE 35th International Conference on Electronics and Nanotechnology (ELNANO), April 21-24, 2015.
471. [AC-2-2015] Properties of RNA Nanotubes and Their Applications (with S. Badu and S. Prabhakar), Smart Structures NDE, SanDiego, USA, March 8-12, 2015.
472. [AC-1-2015] Spin Manipulation through geometric phase in III-V semiconductor quantum dots (with S. Prabhakar), APS Meetings, San Antonio, U.S.A. (Bulletin of the American Physical Society, Vol. 60, No. 1), March 2-6, 2015.
473. [AC-18-2014] Studying Properties of RNA Nanotubes via Molecular Dynamics (with S. Badu), The 5th International Conference on Nanotechnology and Biosensors (ICNB 2014), American Society for Research, Abstract, p. 29, Barcelona, December 18-20, 2014.
474. [AC-17-2014] Artificial Neural Network Training via Markov Chain, 2014 International Conference on Artificial Intelligence (ICOAI 2014), American Society for Research, Abstract p. 9-10, Barcelona, December 22-24, 2014.
475. [AC-16-2014] Mechanical Properties of Biological Nanotubes with Multiscale Coarse-Grained Models (with S. Badu), The 7th International Conference on Multiscale Materials Modeling, Berkeley, California, USA, October 6-10, 2014.
476. [AC-15-2014] Nonlinear Dynamics and Numerical Approximations with Coupled Mathematical Models for Multi-Phase Materials, Invited Talk at the Applied Mathematics Conference Dedicated to Prof. M. Shillor 65th Birthday, Rochester, MI, USA, September 13, 2014.
477. [AC-14-2014] The Influence of Thermo-Mechanical Effects on the Relaxed Shape Graphene (with S. Prabhakar and A. Sebetci), Proceedings of the Ninth International Conference on Engineering Computational Technology, P. Ivanyi and B.H.V. Topping (Eds.), Naples, Italy, 2-5 September, Paper 66, Civil-Comp Proceedings: 105, Civil-Comp Press, ISBN 978-1-905088-60-7, 2014.
478. [AC-13-2014] Coupled Multi-Dimensional Models for Shape Memory Alloy Nanostructures: Microstructure Evolution in Nanofilms (with R. Dhote, H. Gomez, A. Sebetci, and J. Zu), 6WCSCM Sixth World Conference on Structural Control and Monitoring, Barcelona, Spain, 15-17 July, 2014.
479. [AC-12-2014] Modeling of RNA Nanotube using Molecular Dynamics Simulation (with S. Badu, M. V. Paliy, S. Prabhakar, A. Sebetci, and B. A. Shapiro), Compute Ontario Research Day, Perimeter Institute for Theoretical Physics, May 7, 2016.
480. [AC-11-2014] Tuning Vibration Frequencies with Shape Memory Alloys in Precision Engineering Applications (with A. Sebetci and L. Wang), The 14th EUSPEN International Conference, Dubrovnik, June 2-6, 2014.
481. [AC-10-2014] Modeling and Control of Berry Phase in Quantum Dots (with S. Prabhakar and A. Sebetci), The 28th European Conference on Modelling and Simulation, Brescia, Italy, May 27-30, 2014.
482. [AC-9-2014] Molecular Dynamics Studies of RNA Nanotubes (with S. Badu, M. V. Paliy, S. Prabhakar, A. Sebetci, and B. A. Shapiro), The 11th World Congress on Computational Mechanics (WCCM XI), 2014, E. Onate, X. Oliver, and A. Huerta (Eds.), Barcelona, Spain, 20-25 July 2014, DL: B-17935-2014, ISBN: 978-84-942844-7-2
483. [AC-8-2014] Biopolymer nanostructures in water and physiological solutions (with S. Badu), The 6th International Conference on Physics of Liquid Matter: Modern Problems, May 23-27, 2014.
484. [AC-7-2014] Localization of Envelope Functions in InAs/GaAs Dome-Shaped Quantum Dots (with A. K. Nasab and M. Sabaeain), XXVI IUPAP Conference on Computational Physics, CCP2014, Boston, USA, Abstract, p. 42, August 11-14, 2014.
485. [AC-6-2014] Linear and Nonlinear Optical Properties of Single GaN/AlN Quantum Dots under Electromechanical Effects (with A. K. Nasab and S. Prabhakar), The 5th Annual Nano Ontario Conference, University of Windsor, November 6-7, 2014.

486. [AC-5-2014] Interacting Scales and Coupled Phenomena in Nature and Models, Invited Talk, Jozef Stefan Institute, Summer Solstice-2014: International Conference on Discrete Models of Complex Systems, June 22-25, 2014.
487. [AC-4-2014] Strain Rates in SMA Nanowires: 3D Coupled Model Based on Isogeometric Analysis (with R. Dhote, H. Gomez, and J. Zu), International Conference on Martensitic Transformations (ICOMAT), Abstract Book, p. 74, Bilbao, July 6-11, 2014.
488. [AC-3-2014] Nanostructures with shape memory effect: modelling coupled dynamics (with R.P. Dhote, H. Gomez, A. Sebetci, and J. Zu), The 2014 IEEE XXXIV Scientific Conference on Electronics and Nanotechnology (ELNANO), April 15-18, 2014.
489. [AC-2-2014] Rashba spin-orbit coupling effects in armchair graphene nanoribbons (with S. Prabhakar and A. Sebetci), APMAS-2014: The 4th International Congress and Exhibition on Advances in Applied Physics and Materials Science, Oludeniz, April 24-27, 2014.
490. [AC-1-2014] Computational models for the Berry phase in semiconductor quantum dots (with S. Prabhakar and A. Sebetci), The 10th International Conference of Computational Methods in Sciences and Engineering (Symposium on Theory, Modeling, Investigation and Simulation of Low-Dimensional Systems), Athens, April 4 -7, 2014.
491. [AC-14-2013] Spin control in quantum dots for quantum information processing(with S. Prabhakar and L. L. Bonilla), NATO Advanced Research Workshop on Nanotechnology in Security Systems, September 29 - October 3, 2013.
492. [AC-13-2013] Relaxed shape of graphene sheet due to ripples (with S. Prabhakar, L. Bonilla, and S. Badu), ECT-2013: Conference on Electron Correlation in Nanostructures (in conjunction with the NATO Advanced Research Workshop on Nanotechnology in Security Systems), Invited talk, October 3 -6, 2013.
493. [AC-12-2013] Computational Analysis and Finite Element Modelling of Nanoscale Ripples in Graphene and Thermo-mechanical Effects (with S. Prabhakar), The 8th International Scientific and Technical Conference on Computer Science and Information Technologies (CSIT-2013), 11-16 November, 2013.
494. [AC-11-2013] Distributed Computing for Phase-Field Models (with R. Dhote, H. Gomez, and J. Zu), The 8th International Scientific and Technical Conference on Computer Science and Information Technologies (CSIT-2013), 11-16 November, 2013.
495. [AC-10-2013] Multiphysics effects and electronic properties of low dimensional nanostructures (with S. Prabhakar), Multiphysics-2013: The 8th International Conference of Multiphysics, Amsterdam, The Netherlands, December 12-13, 2013.
496. [AC-9-2013] Coupled problems in analysis of quantum dots with multiband models (with Prabhakar, S. and Bonilla, L.), The Vth Conference on Computational Methods for Coupled Problems in Science and Engineering (Coupled Problems 2013), Spain, June 2013.
497. [AC-8-2013] Isogeometric analysis of coupled thermo-mechanical phase-field models for shape memory alloys using distributed computing (with Dhote, R., Gomez, H., and Zu, J.), The International Conference on Computational Science (ICCS-2013), Barcelona, 2013.
498. [AC-7-2013] Isogeometric analysis implementation of the phase-field model for 3D cubic-to-tetragonal transformations in shape memory alloys (with Dhote, R., Gomez, H., and Zu, J.), The 6th ECCOMAS Conference on Smart Structures and Materials (SMART2013), Torino, June 24-16, 2013.
499. [AC-6-2013] Phase-field modeling and simulations of 3D cubic-to-tetragonal transformations in shape memory alloy nanostructures (with R. Dhote, H. Gomez, and J. Zu), 12th U.S. National Congress on Computational Mechanics (USNCCM12), Raleigh, North Carolina, July 22-25, 2013.
500. [AC-5-2013] Isogeometric analysis of cubic-to-tetragonal martensitic transformations in shape memory alloy 3D domains under mechanical and thermal loads (with R. Dhote, H. Gomez, and J. Zu), Joint SES 50th Annual Technical Meeting and ASME-AMD Annual Summer Meeting, Brown University, RI, USA, July 28 - 31, 2013.
501. [AC-4-2013] Piezo-electromechanical effects in embedded nanowire superlattices (with S. Prabhakar and L. Bonilla), AMMCS-2013, Waterloo, Canada, Special Session on Mathematical Modeling in Nanoscience and Nanotechnology, p. 333, August 26-30, 2013.

502. [AC-3-2013] Parallel numerical method for time-dependent Schrodinger equation with application to quantum heterostructures (with D. Sytnyk and S. Prabhakar), AMMCS-2013, p. 592, Waterloo, Canada, August 26-30, 2013.
503. [AC-2-2013] Nucleation heterogeneity in shape memory alloys: studies with 3D coupled thermo-mechanical phase-field models (with R. Dhote, H. Gomez, and J. Zu), AMMCS-2013, Waterloo, Canada, Special Session on Computational Materials Science, p. 110, August 26-30, 2013.
504. [AC-1-2013] Multiphysics effects and electronic properties of anisotropic semiconductor quantum dots (with Prabhakar, S.), The 2013 IEEE XXXIII International Scientific Conference on Electronics and Nanotechnology (ELNANO), Kiev, April 16 - 19, 2013.
505. [AC-6-2012] Multiphysics Effects and Electronic Properties of Low Dimensional Nanostructures (with S. Prabhakar), The Eighth International Conference on Engineering Computational Technology, 4-7 September 2012.
506. [AC-5-2012] Nonlocal models for low-dimensional nanostructures and quantum-mechanical-kinetic coupling in semiconductor superlattices (with M. Alvaro, L.L. Bonilla, M. Carretero, and S. Prabhakar), XXXIII Sitges Conference on Statistical Mechanics "Understanding and Managing Randomness in Physics, Chemistry and Biology", Invited Talk, Book of Abstracts, p. 30, Barcelona, Spain, 4-8 June, 2012.
507. [AC-4-2012] Phase field dynamic modeling of SMA based on Isogeometric analysis (with R. Dhote, H. Gomez, J. Zu), The CIMTEC Congress and 4th International Conference on Smart Materials, Structures and Systems, Italy, June 10-14, 2012.
508. [AC-3-2012] Phonon-induced spin relaxation rate in anisotropic III-V semiconductor quantum dots (with S. Prabhakar, S. Ghose, L.L. Bonilla), The CAP Congress (Canadian Association of Physicists, Calgary), June 11-15, 2012.
509. [AC-2-2012] Gate-controlled electron spins in quantum dots (with S. Prabhakar), The 2nd International Conference on Applied Physics and Materials Science, April 26-29, 2012.
510. [AC-1-2012] Model reductions in mathematical models for biomaterials: from continuum to discrete levels (with M. Paliy, B. Shapiro, L. Wang, and A. Zhukov), III International Conference on Biomedical Engineering and Technology, NTUU KPI, p. 230-231, March 15-16, 2012.
511. [AC-12-2011] Coupled multiphysics effects in cylindrical quantum dots with multiband models (with S. Prabhakar), International Conference on Multiphysics, Multiphysics-2011, Barcelona, Spain, p. 16, December 15-16, 2011.
512. [AC-11-2011] Dynamic Thermo-Mechanical Properties of Shape Memory Alloy Nanowires Upon Multi-Axial Loading (with R. Dhote, J. Zu), ASME 2011 Conference on Smart Materials, Adaptive Structures and Intelligent Systems (SMASIS2011), Scottsdale, Arizona, USA, September 18-21, 2011.
513. [AC-10-2011] Mathematical models for low dimensional nanostructures: analysis, numerics and control, The 16th International Conference on Mathematical Modelling and Analysis, Book of Abstracts, p. 86, May 25-28, Sigulda, 2011, Plenary One-hour Talk.
514. [AC-9-2011] Coupled multiphysics models for the analysis of the conduction and valence band eigenenergies in cylindrical quantum dots (with S. Prabhakar and E. Takhtamirov), The Advances in Applied Physics and Materials Science Congress, Book of Abstracts, Vol. 1, p. 289, May 12 - 15, Antalya, 2011.
515. [AC-8-2011] Manipulation of single electron spins through Lande g-factor in InAs quantum dots (with S. Prabhakar), The 5th International Scientific Conference on Physics and Control, September 5 - 8, 2011.
516. [AC-7-2011] Mathematical models for electronic structures of low dimensional nanostructures and their numerical approximations: quantum-continuum coupling, ApplMath11 - The 7th Conference on Applied Mathematics and Scientific Computing, p. 46-47, June 13 - 17, 2011.
517. [AC-6-2011] Coarse-grained modeling of the RNA nanostructures (with M. Paliy, A.V. Zhukov and B. Shapiro), , AMMCS-2011, Special Session on Computational Bio-Nanotechnology (H.H. Gan, New York University and G. Arya, UC San Diego), July 25 - 29, 2011.
518. [AC-5-2011] Adiabatic control of single electron spins in semiconductor quantum dots through the application of Berry phase (with S. Prabhakar), AMMCS-2011, July 25 - 29, 2011.

519. [AC-4-2011] Analysis of RNA nanostructures with coarse-grained models (with M. Paliy, A.V. Zhukov and B. Shapiro), Second International Conference on Nanobiophysics: Fundamental and Applied Aspects, October 6 - 9, 2011.
520. [AC-3-2011] Magneto-thermo-piezoelectric effects in quantum dots (with S. Prabhakar), International Conference on Functional Materials (ICFM-2011), Parenit, Oct 3-8, 2011.
521. [AC-3-2011] Properties of finite length shape memory alloy nanowires and dynamic thermo-mechanical coupling (with R. Dhote, J. Zu), International Conference on Frontier Topics in Nanostructures and Condensed Matter Theory, OA-Fr-B5, London, ON, March 9-11, 2011.
522. [AC-2-2011] Gate control of a single electron spin in quantum dots through the application of a geometric phase (with S. Prabhakar), Workshop on Quantum Control, BIRS, April 3-8, 2011.
523. [AC-1-2011] RNA nanostructures and their properties: a modelling perspective (co-authors: M. Paliy and B. Shapiro), Biomedical Engineering and Technology, NTUU, March 17-18, 2011 (plenary).
524. [AC-22-2010] Mathematical models and numerical analysis of the conduction and valence band engineering in cylindrical quantum dots (with S. Prabhakar and E. Takhtamirov), European Conference for the Applied Mathematics and Informatics, Greece, Dec., 2010.
525. [AC-21-2010] Ellipticity conditions in multiband Hamiltonian problems for the analysis of low dimensional nanostructures (with D. Sytnyk), International Conference on Functional Analysis (dedicated to the 90th anniversary of V. E. Lyantse), Lviv University, November 17 - 21, 2010.
526. [AC-20-2010] Nonsmooth control and stochastic partial differential equations in modelling complex systems, International Conference on Modern Stochastics: Theory and Applications (MSTA II), Kiev, Sept. 7-11, 2010.
527. [AC-19-2010] RNA nanostructures (with M. Paliy and B. Shapiro), International Interdisciplinary Conference on Mathematics and Life Sciences: Possibilities, Interlacements and Limits, Alexander von Humboldt Foundation, August 5 - 8, 2010.
528. [AC-18-2010] Thermoelectromechanical effects in two coupled quantum dots (with S. Prabhakar), Nanotech Conference & Expo 2010, TU30.611 (Nanostructured Materials & Devices), June 21-24, Anaheim, CA, 2010.
529. [AC-17-2010] Microstructures of constrained shape memory alloy nanowires under thermal effects, Dhote, R. P., Melnik, R.V.N., Zu, J.W., Wang, L., The ASME 2010 Conference on Smart Materials, Adaptive Structures and Intelligent Systems (SMASIS-2010), Sept 28 - Oct 1, Philadelphia, USA, 2010.
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639. [AC-12-2005] Computation of phase transformation dynamics in shape memory alloys based on a Landau-Ginzburg free energy model (Mahapatra, DR, Melnik, RVN), Book of Abstracts: II ECCOMAS Thematic Conference on Smart Structures and Materials, Eds. Mota Soares C.A. et al, Lisbon, p. 108, 2005.
640. [AC-11-2005] Simulation of phase combinations in SMA patches with hybrid optimization methods (with Wang, LX), *Abstracts of the 7th IMACS International Symposium on Iterative Methods in Scientific Computing*, May 2005.
641. [AC-10-2005] Mechanically induced phase combination in SMA samples by Chebyshev collocation methods (with Wang, LX), *Abstracts of ISOMAT-2005*, Shanghai, June 14-17, 2005.
642. [AC-9-2005] A low-dimensional model for SMA patches with phase transformations (with Wang, LX), *Abstracts of the International Conference on Scientific Computing (ICSC05)*, Nanjing, China, June 4-8, 2005.
643. [AC-8-2005] Numerical models for biocompatible shape memory materials and their biomedical applications (Melnik, RVN, Wang, L., Mahapatra, DR), Book of Abstracts: 17th IMACS World Congress on Scientific Computation, Applied Mathematics and Simulation, p.85/183, 2005.
644. [AC-7-2005] Numerical study of optoelectromechanical effects in quantum dot arrays (Melnik, RVN, Lassen, B., Lew Yan Voon, L., and Willatzen, M.), Book of Abstracts: 17th IMACS World Congress on Scientific Computation, Applied Mathematics and Simulation, p. 99/183, 2005.
645. [AC-6-2005] Numerical Analysis of mathematical models for 3D shape memory materials (Melnik, RVN, Mahapatra, DR), Programme of the Third IMACS Conference on Mathematical Modelling and Computational Methods in Applied Sciences and Engineering (MODELLING-2005), Pilsen, Czech Republic, July 4-8, 2005.
646. [AC-5-2005] Dynamics of biocompatible shape memory alloys with discrete models (Melnik, RVN, Mahapatra, DR), Conference on Differential and Difference Equations and Applications (Session on Mathematical Models of Biophysical Systems), Florida Institute of Technology, August 1-5, 2005.
647. [AC-4-2005] Analysis of coupled thermoelasticity and first-order kinetics in phase-transforming solids (Mahapatra, DR., Melnik, RVN), Abstract of the *Workshop "High-Dimensional Partial Differential Equations in Science and Engineering, Centre de Recherches Mathematiques, University of Montreal*, August 7-12, 2005.
648. [AC-3-2005] Electronic properties of wurtzite-based nanowires, nanorods, and nanodots (with LC Lew Yan Voon, C. Galeriu, B. Lassen, and M. Willatzen), *MRS Fall Meeting*, Boston, USA, Dec 1, 2005.
649. [AC-2-2005] Band structure of wurtzite quantum dots with cylindrical symmetry (with LC Lew Yan Voon, C. Galeriu, B. Lassen, and M. Willatzen), *2005 APS March Meeting*, Los Angeles, USA, March 21-25, 2005.

650. [AC-1-2005] A 3D finite element model of martensitic transformation dynamics using a consistent microscopic energy representation (Mahapatra, DR, Melnik, RVN), *WAVES'05 - VIIth International Conference on Mathematical and Numerical Aspects of Waves*, Brown University, USA, June 20–24, 2005.
651. [AC-11-2004] A unified numerical treatment of modified compound KdV-Burgers' equations (Wang, LX, Melnik, RVN), *The VIth World Congress on Computational Mechanics in Conjunction with APCOM'04*, Beijing, Sept 5 - 10, 2004.
652. [AC-10-2004] Resonant Tunneling Heterostructure Devices - Dependencies on Thickness and Number of Quantum Wells (with N. Radulovic and M. Willatzen), *International Conference on Computational Science and its Applications, ICCSA-2004*, Assisi, Italy, May 14-17, 2004.
653. [AC-9-2004] Thermomechanical Waves in SMA Patches Under Small Mechanical Loadings (with L. Wang), *International Conference on Computational Science, ICCS-2004*, Krakow, June 6 - 9, 2004.
654. [AC-8-2004] Valence band structure of quantum wires: effect of size, shape, orientation, material system, and multi-band model, *Proceedings of the XVIIth Latin American Symposium on Solid State Physics* (with LC Lew Yan Voon, B. Lassen, and M. Willatzen), *SLAFES'04*, December, 2004.
655. [AC-7-2004] Quantum Dot Structures and Nonlinear Models for Their Analysis and Computation (with L.C. Lew Yan Voon, B. Lassen, M. Willatzen, C. Galeriu), *American Institute of Mathematical Sciences Vth Int Conference on Dynamical Systems and Differential Equations, Pomona, CA, USA*, Book of Abstracts, 2004.
656. [AC-6-2004] Multidimensional Phase Transitions and Dynamics of Shape Memory Alloy Patches (with L. Wang), *American Institute of Mathematical Sciences Vth Int Conference on Dynamical Systems and Differential Equations, Pomona, CA, USA*, Book of Abstracts, 2004.
657. [AC-5-2004] Barrier Localization in the Valence Band of Modulated Nanowires (with L.C. Lew Yan Voon, B. Lassen, and M. Willatzen), *Int. Conference on the Physics of Semiconductors, ICPS-27, Flagstaff, USA*, 2004.
658. [AC-4-2004] Valence-Band Energies of GaAs/AlGaAs and InGaAs/InP V-groove $[1\bar{1}0]$ quantum wires (with B. Lassen, L.C. Lew Yan Voon, and M. Willatzen), *NanoTech-2004, Boston, USA*, 2004.
659. [AC-3-2004] Transient Quantum Drift-Diffusion Modelling of Resonant Tunneling Heterostructure Nanodevices (with N. Radulovic and M. Willatzen), *Int. Conference on the Physics of Semiconductors, ICPS-27, Flagstaff, USA*, 2004.
660. [AC-2-2004] Orientation Effects on the Band Structure of Quantum Wires (with B. Lassen, L.C. Lew Yan Voon, and M. Willatzen), *American Physical Society Meeting, March 2004, Montreal, USA*, 2004.
661. [AC-1-2004] Influence of Aspect Ratio on the Lowest Valence States of Quantum Rods (with L.C. Lew Yan Voon, B. Lassen, and M. Willatzen), *Int. Conference on the Physics of Semiconductors, ICPS-27, Flagstaff, USA*, 2004.
662. [AC-9-2003] Determination of Distance from a 2D Picture (with J. Gravesen, B. Lassen, N. Radulovic, L. Wang, B. Picasso, and R. Piche), *The European Study Group with Industry (ESGI47) and Mathematics for Industry Workshop*, August 24-29, 2003.
663. [AC-8-2003] Computational Aspects of Conservative Difference Schemes for Shape Memory Alloys Applications (with L. Wang, P. Matus, I. Rybak), *The International Conference on Computational Science and Its Applications, ICCSA-2003*, Montreal, Canada, May 18-21, 2003.
664. [AC-7-2003] Modelling Pyramidal Quantum Dot Nanostructures, *The VI Engineering Mathematics and Applications Conference*, Sydney, July 9-11, 2003.
665. [AC-6-2003] Finite Element Analysis of Nanowire Superlattice Structures (with Willatzen, M., C. Galeriu, L.C. Lew Yan Voon), *The International Conference on Computational Science and Its Applications, ICCSA-2003*, Montreal, Canada, May 18-21, 2003.
666. [AC-5-2003] Nonlinear Coupled Thermomechanical Waves: Modelling Shear Type Phase Transformations in Shape Memory Alloys (with L. Wang), *The 6th Intern. Conference on Mathematical and Numerical Aspects of Wave Propagation*, Finland, 30 June - 4 July, 2003.

667. [AC-4-2003] Computations of Coupled Electronic States in Quantum Dot/Wetting Layer Cylindrical Structures (with K. N. Zotzenko), International Conference on Computational Science, Melbourne, Australia, June 2 - 4, 2003.
668. [AC-3-2003] Difference Between Luttinger-Kohn and Exact Envelope Function Approaches for Quantum-Wire Electronic Bandstructures (with B. Lassen, M. Willatzen and L.C. Lew Yan Voon), *VIIth Int. Conference on Intersubband Transitions in Quantum Wells: ITQW-2003, Evolene, Switzerland*, 2003.
669. [AC-2-2003] Dynamics of Two-Dimensional Shape Memory Alloy Patches (with L. Wang), *VIth European Symposium on Martensitic Transformation and Shape-Memory*, Cirencester, UK, 2003.
670. [AC-1-2003] Conservative Difference Schemes for Materials with Memory (with P. Matus), Invited Talk *Advances in Theory and Applications of Partial Differential Equations, embedded workshop at Dynamic Systems and Applications IV*, Atlanta, USA, 2003.
671. [AC-11-2002] Thermal Analysis of Induction Motors under Time-Dependent Frequencies and Electromechanical Loadings (with H. Ying and P.B. Thogersen), The 6th Intern. Conference on Mechatronic Technology, Kitakyushu, Japan, September 29 - October 3, 2002.
672. [AC-10-2002] Modelling and Control of Electric Vehicle Dynamics Accounting for Skid Phenomena (with P. Sandholdt and N. Song), The 6th Intern. Conference on Mechatronic Technology, Kitakyushu, Japan, September 29 - October 3, 2002.
673. [AC-9-2002] Modelling Coupled Motion of Electrons in Quantum Dots with Wetting Layers (with M. Willatzen), NanoTech 2002, The Fifth International Conference on Modeling and Simulation of Microsystems [An Interdisciplinary Integrative Forum on Modeling, Simulation and Scientific Computing in the Microelectronic, Semiconductor, Sensors, Materials and Biotechnology Fields], USA, April 21-25, San Juan , Puerto Rico, 2002.
674. [AC-8-2002] Computational Models for Materials with Shape Memory: Towards a Systematic Description of Coupled Phenomena (with A.J. Roberts), The 2002 International Conference on Computational Science (ICCS-2002), April 21 - 24, Amsterdam, 2002.
675. [AC-7-2002] Dynamics of Torque-Speed Profiles for Electric Vehicles and Nonlinear Models Based on Differential-Algebraic Equations (with P. Sandholdt, N. Song), *The Fourth International Conference on Dynamical Systems and Differential Equations*, Wilmington, USA, 2002.
676. [AC-6-2002] Analysis of Photonic Crystal Problems (group report, with P. Hjorth, M. Bendsoe, J. Rimshans, J. Ockendon, L. Wang, D. Wood) *The 44th European Study Group with Industry*, August 19-23, 2002, DTU, Copenhagen, 2002.
677. [AC-5-2002] Analysis of Photonic Crystal Problems (group report, with P. Hjorth, M. Bendsoe, J. Rimshans, J. Ockendon, L. Wang, D. Wood) *The 44th European Study Group with Industry*, August 19-23, 2002, DTU, Copenhagen, 2002.
678. [AC-4-2002] Computational Analysis of Coupled Thermoelastic Phenomena with Differential-Algebraic Solvers (with Linxiang Wang), *International Congress on Computational and Applied Mathematics*, Leuven, Belgium, July 22-26, 2002.
679. [AC-3-2002] Modelling Vibrational Modes in Water Tubes (group report, with E. Smith, M. Willatzen, E.B. Hansen, M.H. Hansen, C. Pommer, F. Voss, M.L. Petersen, O. Brink-Kjaer), *The 41st European Study Group with Industry*, August 13-17, 2001, Odense, 2002.
680. [AC-2-2002] Efficient Computational Models for Coupled Nonlinear Dynamics of Materials with Memory, Invited lecture at the Second International Conference on Neural, Parallel & Scientific Computations, Aug 7 - 10, Atlanta, USA, 2002.
681. [AC-1-2002] Computationally Efficient Parallel Algorithms for Time-Dependent Convection-Diffusion Models (with I.P. Gavrilyuk), *Fifth World Congress on Computational Mechanics*, July 7-12, Vienna Technical University, 2002, ISBN 3-9501554.
682. [AC-4-2001] Constructing Operator-Difference Schemes for Problems with Matching Boundaries, The VI Int. Conf. on Difference Equations and Applications, ICDEA-2001, Augsburg, Germany, July 30 - August 3, 2001.

683. [AC-3-2001] Phase Transitions and Hysteresis Analysis for Shape Memory Alloys Applications, *Book of Abstracts of the VI Int. Conf. "Mathematical Modelling and Analysis"*, invited plenary lecture, Vilnius, May 31 -June 2, 2001.
684. [AC-2-2001] Modelling Dynamics of Coupled Electromechanical Systems Embedded into Acoustic Media: Aspects of Numerical Approximation, *First SIAM-EMS Conference on Applied Mathematics*, Berlin, Germany, September 2-6, 2001.
685. [AC-1-2001] Numerical Analysis of Dynamic Characteristics of Coupled Piezoelectric Systems in Acoustic Media, *Book of Abstracts of the IMACS Conference "Mathematical Modelling and Computational Methods in Mechanics, Physics, Biomechanics and Geodynamics"*, Pilsen, June 25-29, 2001.
686. [AC-7-2000] Thermomechanical behaviour of thermoelectric SMA actuators (with A. J. Roberts), ESOMAT 2000 : Fifth European Symposium on Martensitic Transformations and Shape Memory Alloys, Villa Olmo, Como, Italy, September 4-8, 2000.
687. [AC-6-2000] Modelling Dynamics of Multilayered SMA Actuators (with A.J. Roberts), Smart Structures and Devices, SPIE Conference, Dec 13, Melbourne, Australia, 2000.
688. [AC-5-2000] Accounting for Thermal Effects in Dynamics of Piezoelectric Structures, The IV International Engineering Mathematics and Applications Conference (EMAC'2000), Sept 10 - 13, RMIT, Melbourne, 2000.
689. [AC-4-2000] Analysis of the Performance of Two Distance Geometry Algorithms in Simulation of Polymer Systems (with A. Uhlherr, J. Hodgkin, and F. de Hoog), The IV International Engineering Mathematics and Applications Conference (EMAC'2000), Sept 10 - 13, RMIT, Melbourne, 2000.
690. [AC-3-2000] On the possibility of thermomechanical instability induced by thermal relaxation (with D.V. Strunin and A.J. Roberts), *The 36th Applied Mathematics Conference ANZIAM-2000, Bay of Islands, New Zealand*, February 2000.
691. [AC-2-2000] Applications of Distance Geometry Algorithms to Atomistic Simulation of Polymer Systems, (with J. Hodgkin, F. de Hoog and A. Uhlherr), *Book of Abstracts: XVth IMACS Congress*, Eds.: M. Deville and R. Owens, Lausanne, 2000.
692. [AC-1-2000] Numerical Analysis of the Behaviour of Rubber-Like Polymers with Hyperbolic Models of Nonlinear Thermoelasticity, (with D. V. Strunin and A.J. Roberts), *Book of Abstracts: XVIth IMACS Congress*, Eds.: M. Deville and R. Owens, Lausanne, 2000.
693. [AC-6-1999] Dynamics of Shape-Memory-Alloys: A Reduction Procedure for 3D Models (with Roberts, A.J. and Thomas, K.A.), European Conference on Computational Mechanics: Solids, Structures and Coupled Problems in Engineering, Munich, Germany, 1999.
694. [AC-5-1999] Modelling Dynamics of Shape-Memory-Alloys via Computer Algebra (with Roberts, A.J., Thomas, K.A.), Smart Structures and Materials 1999: Mathematics and Control in Smart Structures , SPIE Conference, Newport Beach, CA, USA, March 1-2, 1999.
695. [AC-4-1999] Numerical modelling of thermoelastic processes using nonlinear theories with thermal relaxation time, D. V. Strunin, R. V. N. Melnik, A. J. Roberts, The 1999 International Conference on Computational Techniques and Applications (CTAC'99), September 20-24, Canberra, 1999.
696. [AC-3-1999] Approximate Models for Nonlinear Control and Hamilton-Jacobi-Bellman Equations in Non-Reflexive Banach Spaces, The European Control Conference, Karlsruhe, Germany, Aug 31 - Sept 3, 1999.
697. [AC-2-1999] Mathematical and Numerical Analysis of Hyperbolic Models for Shape-Memory Alloys (with A.J. Roberts and K.A. Thomas), *Fourth International Congress on Industrial and Applied Mathematics, Edinburgh, Scotland, July 1999*.
698. [AC-1-1999] Modelling Shape-Memory-Alloy Phase Transitions (with Roberts, A.J. and Thomas, K.A.), *The 35 ANZIAM Conference, Mollmook, New South Wales, 7-11 February, 1999*.
699. [AC-4-2000] Approximate Models of Dynamic Thermoelastocoelectricity Describing Shape-Memory-Alloy Phase Transitions (with Roberts, A.J.), July 9 - 10, Hervey Bay, QLD, Australia, Workshop on New Methods in Applied and Computational Mathematics (NEMACOM '98), 1998.

700. [AC-3-1998] Constructive Approximations of the Convection-Diffusion-Absorption Equation Based on the Cayley Transform Technique (with Gavrilyuk, I.P.), The Fourth World Congress on Computational Mechanics, Buenos Aires, June 29 - July 2, 1998.
701. [AC-2-1998] Numerical Analysis of Hollow Piezoceramic Cylindrical Vibrators under Non-Stationary Conditions (with Melnik, K.N.), International Conference on Engineering Mathematics and Applications: EMAC'98 (The 3rd Biennial International Conference), Adelaide, July 13 - 16, 1998. (Adelaide)
702. [AC-1-1998] Simulation of Transient Behaviour of Semiconductor Devices with Quasi-Hydrodynamic Models (with Hao He), *The 34 Applied Mathematics Conference: ANZIAM'98, Coolangatta, Queensland, 7-11 February, 1998.*
703. [AC-7-1997] Steklov's Operator Technique in Coupled Dynamic Thermoelasticity, The 10th International Conference on Numerical Methods in Thermal Problems, Swansea, 21-25 July 1997.
704. [AC-6-1997] A Hierarchy of Hyperbolic Macrodynamic Equations as a Model for Network Training, The IEEE International Symposium on Information Theory, Network Access Session, Ulm, Germany, 1997.
705. [AC-5-1997] Error Dynamics and Coupling Procedures in Mathematical Climate System Models, The 15th IMACS World Congress on Scientific Computation, Modelling and Applied Mathematics, Germany, Berlin, 1997.
706. [AC-4-1997] Intelligent Structures and Coupling in Mathematical Models: Examples from Dynamic Electroelasticity, The IEEE International Conference on Properties and Applications of Dielectric Materials: ICPADM'97, Seoul, Korea, 1997.
707. [AC-3-1997] Modelling of Nonlocal Physical Effects in Semiconductor Plasma Using Quasi-Hydrodynamic Models (with Melnik, K.N.), Computational Techniques and Applications: CTAC97, The 8th Biannual Conference, Sept 29 - Oct 1, Adelaide, Australia, 1997.
708. [AC-2-1997] On Computational Aspects of Certain Optimal Digital Signal Processing Algorithms (with Melnik, K.N.), Computational Techniques and Applications: CTAC97, The 8th Biannual Conference, Sept 29 - Oct 1, Adelaide, Australia, 1997.
709. [AC-1-1997] Numerical Algorithms for First Order PDEs and Markov Chain Approximations, *The 33 ANZIAM Conference, Lorne, Victoria, 2-6 February, 1997.*
710. [AC-4-1996] Generalized Solutions of Hamilton-Jacobi-Bellman Equation from Sobolev's Classes, *The 32 ANZIAM Conference, Masterton, New Zealand, 4-8 February, 1996.*
711. [AC-3-1996] Non-conservation Law Equation in Mathematical Modelling: Aspects of Approximation, International Conference on Engineering Mathematics and Applications: EMAC'96, Sydney, Australia, 1996.
712. [AC-2-1996] Computational Models in Solid State Electronics: Boundary Element Method as a Markov Decision Process, *Numerical Methods and Computational Mechanics in Science and Engineering, The University of Miskolc, Hungary, 1996.*
713. [AC-1-1996] Nonlinear Dynamical Systems: Coupling Information and Energy in Mathematical Models, *40th Conference of the Australian Mathematical Society, Adelaide, July, 1996.*
714. [AC-6-1994] Numerical Analysis of Difference Solutions in Coupled Nonstationary Electroelastic Fields Modelling, *International Congress of Mathematicians, Zurich, Switzerland, August 1-3, 1994.*
715. [AC-5-1994] Computationally Efficient Difference Schemes for Coupled Nonstationary Electroelastic Fields Modelling, *The Third World Congress on Computational Mechanics: WCCM-III, Chiba, Japan, August, Vol.2, 1824-1825, Published by the International Association for Computational Mechanics, 1994.*
716. [AC-4-1994] Numerical Solution of the Quasi-Hydrodynamic Device Model based on the Semi-Implicit Scheme and Flux Correction Method, *The Third World Congress on Computational Mechanics: WCCM-III, Chiba, Japan, August, Vol. 2, 1828-1829, Published by the International Association for Computational Mechanics, 1994.*
717. [AC-3-1994] Convergence of Difference Solutions for Nonstationary Problems of Coupled Thermoelasticity in Stresses, *The Third International Colloquium on Numerical Analysis, Mathematical Faculty of the Plovdiv University, August, 1994.*

718. [AC-2-1994] Numerical Solution of a Coupled Praetersonics Problem Using Semi-Implicit Difference Schemes, *International Conference on Computer Aided Design Problems in Electronics, Kiev, February 1-3, 1994*.
719. [AC-1-1994] A Finite Difference Method for the Numerical Solution of the General Praetersonics System with Application to Multilayered Amplifier Simulation, *The Fifth International Colloquium on Differential Equations, Plovdiv, August, 1994*.
720. [AC-3-1993] Existence of Generalized Solutions for Differential Systems of Electro- and Thermoelastoelectricity, *International Conference on Degenerate and Mixed Differential Equations, Tashkent, Institute of Mathematics, Academy of Sciences, 23-25 November, 1993*.
721. [AC-2-1993] Generalized Solutions of PDEs in Thermoelastoelectricity, *The Fourth International Colloquium on Differential Equations, Plovdiv, 18-23 August, 1993*.
722. [AC-1-1993] Nonlinear Monotone Methods for Quasihydrodynamic Device Models, *International Conference on Approximation Theory and Computational Mathematics; Numerical Methods in Mechanics, Dnepropetrovsk University, May, 1993*.
723. [AC-5-1992] On Stability and Monotonicity of Difference Schemes for a Quasihydrodynamic Device Model, *XVIII Summer School "Applications of Mathematics in Engineering", Institute of Applied Mathematics and Technical University, Sophia, Varna 25.08-02.09, 1992*.
724. [AC-4-1992] Numerical Methods for Coupled Praetersonics Problems, *The First International Colloquium on Numerical Analysis, Faculty of Mathematics, Plovdiv University, 13-17 August, 1992*.
725. [AC-3-1992] On the Solution of Strongly Nonlinear Parabolic-Type Equations Arising in Semiconductor Device Simulation, *The Third International Colloquium on Differential Equations, Plovdiv, 18-22 August 1992*.
726. [AC-2-1992] Coupled Nonstationary Problems: Computing Electrothermal Characteristics of Semiconductor Devices, *International Scientific and Technical Conference (Professor Kravchuk's memorial); Applications of Computational and Mathematical Methods in Sciences, Kiev, May 12-15, 1992⁸*.
727. [AC-1-1992] Well-Posedness of Mixed and Strongly Coupled Systems of PDEs, *International Conference on Differential and Integral Equations, Mathematical Physics and Special Functions, Samara, May 24-31, 1992*.
728. [AC-4-1991] Numerical Modelling in Coupled Theory of Dynamic Electroelasticity, *The Second International Colloquium on Differential Equations, Plovdiv, August 19-24, 1991*.
729. [AC-3-1991] On a Numerical Method for Modelling Devices with Hydrodynamic Models in the Nonstationary Case, *The Second International Colloquium on Differential Equations, Plovdiv, August 19-24, 1991*.
730. [AC-2-1991] A Finite Element Method for Modelling Electrothermal Processes in Semiconductor Devices (with Limonnik, A.E.), *The 49th Scientific and Technical Conference of the Kiev Polytechnic Institute, 1991*.
731. [AC-1-1991] Two-Dimensional Modelling of Impurity Redistributions in Silicon: Applying Local-One-Dimensional Difference Schemes, *Plasmo-Chemical Technology for Industrial Manufacturing and Electronic Engineering, Kiev, March 12-13, 1991*.
732. [AC-2-1990] Accelerating Convergence of Iterative Processes in Computing Thermal Conditions of Integrated Circuits, *Electronic Equipment and Systems of Device Parameter Control, Yaremcha-Kiev, 1990*.
733. [AC-1-1990] On a Coupled Nonstationary Problem in Modelling Electrothermal Processes in One-Dimensional Semiconductor Structures, *Advanced Problems in Computer & Computational Sciences: Mathematical Support and Software, Minsk, 1990*.
734. [AC-1-1989] A Difference Scheme for the Solution of Coupled Problems on Nonstationary Oscillations of a Finite-Length Piezoceramic Cylinder, *Applications of Computer & Computational Sciences in Solving Engineering Problems, Minsk, Belorussian University, May 4-7, 1989*.

⁸See more at this site

735. [AC-1-1987] Numerical Solution of a Nonstationary Problem in Coupled Electroelasticity Theory, *Numerical Methods in Continuous Medium Mechanics, Conference Proceedings, Vol. 2, USSR Academy of Science, 1987.*
736. [AC-1-1983] Difference Schemes for Thermoelasticity Equations, *The 40-th Scientific Conference of the Kiev State University, Kiev State University, 1983.*

1.8 Some Invited Departmental & Colloquia Presentations, Networking Events

737. [IP-65] Mathematical modelling all the way to the nanoscale and coupled multiscale phenomena, BCAM Center of Excellence Scientific Seminar Series, April 14, 2016.
738. [IP-64] Fields Institute Thematic Program on Multiscale Scientific Computing: From Quantum Physics and Chemistry to Material Science and Fluid Mechanics: Workshop on Multiscale Modeling and its Applications: From Weather and Climate Models to Models of Materials Defects, April 25-29, 2016.
739. [IP-63] BCAM Workshop Quantitative Biomedicine for Health and Disease, Bilbao, Feb 24-25, 2016.
740. [IP-62] Multiple Scales and Their Coupling in Mathematical Modeling, PIMS Applied Mathematics Distinguished Speaker Seminar Series, USASK, April 9, 2015.
741. [IP-61] Multi-phase materials and coupled nonlinear models in science and engineering applications, Tubitak-supported talk at University, Konya (Organizer: Prof. A. Sebetci), March 20, 2014.
742. [IP-60] Coupled Mathematical Models for Multi-Phase Materials: Nonlinear Dynamics and Numerical Approximations, National Technical University of Athens (Mechanical Design & Control Systems Division, Organizer: Prof. Christopher Provatidis), January 10, 2014.
743. [IP-59] Coupled Quantum-Continuum Models for Low Dimensional Nanostructures and Their Numerical Approximations, National Center for Scientific Research (NCSR-Demokritos, Organizer: Prof. Dimitris Tsoukalas), January 9, 2014.
744. [IP-58] Multiple Scales and Coupled Phenomena in Nature and Mathematical Models, Modeling and Numerical Simulation Seminar Series, Gregorio Millan Barbany Institute of Modelling and Numerical Simulation in Fluid Dynamics, Nanoscience and Industrial Mathematics, University Carlos III de Madrid, May 16, 2013.
745. [IP-57] Coupled Mathematical Models for Multi-Phase Materials: Nonlinear Dynamics and Numerical Approximations, Modeling and Numerical Simulation Seminar Series, Gregorio Millan Barbany Institute of Modelling and Numerical Simulation in Fluid Dynamics, Nanoscience and Industrial Mathematics, University Carlos III de Madrid, March 20, 2013.
746. [IP-56] Workshop on graphical models: mathematics, statistics and computer science, Fields Institute, April 16-18, 2012.
747. [IP-55] BCAM networking scientific activities, January - August, 2012.
748. [IP-54] Coupled phenomena and quantum-continuum coupling in modeling low dimensional nanostructures, Modeling and Numerical Simulation Seminar Series, Gregorio Millan Barbany Institute of Modelling and Numerical Simulation in Fluid Dynamics, Nanoscience and Industrial Mathematics, University Carlos III de Madrid, Spain, November 8, 2011.
749. [IP-53] Workshop on the Genedes and Design projects funded by Tekes (Finish Funding Agency for Technology and Innovation), University of Javaskyla, May 4, 2011.
750. [IP-52] Multiple scales and coupled phenomena in mathematical models and Nature, MIT Department, University of Javaskyla, April 28, 2011.
751. [IP-51] Coupled mathematical models for low dimensional nanostructures, Institute of Advanced Studies, Bologna, March 1, 2011.

752. [IP-50] Workshop on interacting processes in random environments, Fields Institute, February 14-18, 2011.
753. [IP-49] Multi-Phase Materials, Coupled Nonlinear models, and numerical approximations, Department of Mathematics, University of Bologna, January 25, 2011.
754. [IP-48] Coupled effects in PDE-based models for nanoscience (Part III) *Center of Excellence in Applied Mathematics BCAM, Bizkaia Technology Park, Spain*, July 8, 2010.
755. [IP-47] Nonlinear effects in modelling low dimensional nanostructures *NanoBio, University of the Basque Country UPV/EHU, Donostia - San Sebastian, Spain*, June 23, 2010.
756. [IP-46] Time-Dependent PDEs, Conservative Numerical Approximations, and the Cayley Transform Technique (Part II) *Center of Excellence in Applied Mathematics BCAM, Bizkaia Technology Park, Spain*, May 12, 2010.
757. [IP-45] Coupled PDE-based mathematical models: Part I - nonlinear dynamics of multi-phase materials and their numerical approximations *Center of Excellence in Applied Mathematics BCAM, Bizkaia Technology Park, Spain*, April 19, 2010.
758. [IP-44] Mathematics of phase transformations and model coupling, *Department of Mathematics & Statistics, University of Guelph, Canada*, December 3, 2009.
759. [IP-43] Studying properties of RNA nanostructures and their potential applications, Invited talk (audio presentation is available from the Fields website), Field Institute Workshop on Quantitative Cancer Modelling: Mathematical Models, Imaging and Bioinformatics, August 27, 2008.
760. [IP-42] Models for Quantum Dots Accounting for Coupled Effects and Nonlinear Strain, *Nanoscience Centre Seminar Series, The University of Cambridge, England*, April 27, 2007.
761. [IP-41] Cayley Transform Techniques in PDEs and Their Numerical Approximations, *The Isaac Newton Institute, The University of Cambridge, England*, March 14, 2007.
762. [IP-40] Coupled Optoelectromechanical Effects in Modelling Quantum Dot Nanostructures and Predicting Their Properties, *Imperial College, London, England, Condensed Matter/Mathematical Physics Seminar Series*, April 19, 2007.
763. [IP-39] Conservative Numerical Approximations and the Cayley Transform Technique in Applications to PDEs (Applying Geometric Integrators), *International Centre for Mathematical Sciences, Edinburgh, Scotland*, April 24, 2007.
764. [IP-38] Time-dependent Models of Phase Transformations and Their Numerical Approximations, *The Isaac Newton Institute, The University of Cambridge, England*, May 1, 2007.
765. [IP-37] Quantum Dots: Paving the Way to Fully Coupled Models, *Center for Quantum Device Technology, Clarkson University, NY, USA*, March 30-31, 2006.
766. [IP-36] Coupling Physical Fields in Quantum Dots and Predicting Optoelectromechanical Properties, *COM/Centre for Nanotechnology, Danish Technical University, Denmark*, March 23, 2006.
767. [IP-35] Model Reductions and Model Couplings, *University of Western Ontario, London, Canada*, 01-02, 2006.
768. [IP-34] Nonlinear Strain Models in Studying Phase Transformations and Applications to Nanotechnology, *University of Vermont, USA*, 20-01, 2006.
769. [IP-33] 3D Phase Transformations, *Syddansk University, Denmark*, 16-12, 2005.
770. [IP-32] Model Development for Coupled Nonlinear Processes and Their Numerical Approximations, *University of Toronto, Canada*, November 11, 2005.
771. [IP-31] Algorithmic Aspects of the Analysis of Energy Landscapes, *Banff Workshop on Modeling Protein Flexibility and Motions, Canada*, July 17-22, 2004.
772. [IP-30] Quantum Dot Structures: Basic Models and Computations of Coupled Electronic States Accounting for the Wetting Layer, *CSIRO, Sydney, Australia*, November 11, 2003.

773. [IP-29] Cavity Shape from Scanner Images with Applications to Biomedicine, *CSIRO, Sydney, Australia*, November 5, 2003.
774. [IP-28] Computational Models for Coupled Dynamic Problems in Science and Engineering, *Louisiana Tech University, USA*, May 12, 2003.
775. [IP-27] Bridging the Scales in Modelling Coupled Dynamic Systems: Analysis and Computation, *Florida Institute of Technology, USA*, April 1, 2003.
776. [IP-26] Mathematical Modelling of Coupled Systems and Phenomena: Theory and Applications, *Wilfrid Laurier University, Waterloo, Canada*, February 2003.
777. [IP-25] Keynote one-hour talk, *Danish Mathematical Society Annual Meeting*, November 1, 2002.
778. [IP-24] Computational Models for Coupled Dynamic Problems, *McMaster University, Canada*, September 2002.
779. [IP-23] Matter, Motion, and Coupling in Mathematical Models for Science and Engineering, *New Mexico Tech, USA*, March 2002.
780. [IP-22] Can We Control Nonlinear Dynamics of Shape Memory Alloys: A Mathematical Modelling Approach, *Danfoss Control Engineering Seminar, Nordborg (Denmark)*, February 2002.
781. [IP-21] Call for Chair in Mathematics, *Division of Information and Communication Sciences, Macquarie University (Sydney)*, November 2001.
782. [IP-20] Call for Professorship, *Department of Mechanical Engineering, North Dakota State University, USA*, November 2001.
783. [IP-19] Quasi-hydrodynamic models describing the dynamics of semiconductor plasma, *Joint seminar of the University of Hamburg and the Technical University of Hamburg-Harburg, Germany*, October 2001.
784. [IP-18] Call for Professorship, *Department of Mathematics and Statistics, Monash University (Melbourne)*, Australia, September 2001.
785. [IP-17] Mathematical Models of Coupled Field Theory and Their Applications, *Endowed Chair Finalist Lecture Series, Georgia Southern University, USA*, May 2001.
786. [IP-16] Introduction to Coupled Field Theory, *Endowed Chair Finalist Lecture Series, Georgia Southern University, USA*, May 2001.
787. [IP-15] Dynamic Behaviour of Granular Flows in Shear Experiments, *CSIRO Computational Fluid Dynamics, Glen Erin, Victoria*, November 2000.
788. [IP-14] Mathematical Modelling for Smart Material and Structure Technology, *CSIRO Telecommunications & Industrial Physics, Sydney*, May 2000.
789. [IP-13] Modelling, Simulation, and Control of Polymer Structures and Polymer Processing, *CSIRO Mathematical and Information Sciences, Sydney*, April 2000.
790. [IP-12] Applications of Coupled Field Theory to Mathematical Modelling and Control of Physical Systems, *University of Southern Denmark and Danfoss*, January 2000.
791. [IP-11] Mathematical Modelling and Systems Analysis: Examples From Coupled Field Theory and Pulp & Paper Industry (Part 2), *Mid Sweden University*, December 1999.
792. [IP-10] Mathematical Modelling and Numerical Analysis in Coupled Field Theory (Part 1), *Mid Sweden University*, August 1999.
793. [IP-9] Mathematical Modelling and Computer Simulation of Shape-Memory-Alloy Phase Transitions, *CSIRO Mathematical and Information Sciences, Canberra*, March 1999.

794. [IP-8] Analysis of Coupled Dynamic Systems: Mathematics, Statistics and Numerics, *School of Computing and Mathematics, Deakin University, Victoria*, December, 1998.
795. [IP-7] Nonsmooth Control of Dynamical Systems and Markov Chain Approximations, *School of Mathematical and Statistical Sciences, La Trobe University, Melbourne*, 24 September, 1998.
796. [IP-6] Deterministic and Stochastic Partial Differential Equations of the Hamilton-Jacobi-Bellman-Type, *Department of Mathematical and Statistical Sciences, Oakland University, Rochester, Michigan, USA*, 19 June, 1998.
797. [IP-5] Computational Microelectronics as a Challenge in Applied Mathematics, *Centre for Industrial and Applied Mathematics, University of South Australia, Adelaide*, May 16, 1997.
798. [IP-4] Semiconductor Device Modelling and Mathematical Conservation Laws, *Seminar in Applied Mathematics and Scientific Computation, University of Queensland, Brisbane*, May 9, 1997.
799. [IP-3] Mathematical Models for Climate Studies, *Centre for Industrial and Applied Mathematics, University of South Australia, Adelaide*, June, 1996.
800. [IP-2] On Nonsmooth Optimal Control Theory, *University of South Australia, School of Mathematics, Adelaide*, May 17, 1995.
801. [IP-1] Nonsmooth Optimal Control Theory and Nonlinear PDEs, *The University of Adelaide, Department of Applied Mathematics*, 31 May, 1995.

1.9 Abbreviations for Categories

- EJ - Refereed Journal Contributions
- EB - Books and Editorials
- EP - Refereed Conference Proceedings
- AC - Extended Abstracts, Invited Lectures
- RR - Refereed Reports
- TH - Research Degree Theses
- TR - Technical Reports and Working Papers
- OC - Papers on Education and Other Contributions

2 Publications Summary

2.1 Summary in Chronological Order

1970s	1980s	1990s	2000s	2010s
1	18	113	361	461
1	3/4/8/3	3/24/12/9/4/20/41	9/112/82/3/8/147	10/117/46/1/287

- 1970s: 1970-1979 - as high school student;
- 1980s: 1980-1989 - as University undergraduate, graduate, and PhD student
- 1990s: 1990-1999 - as Assistant and Associate Professor
- 2000s: 2000-2009 - as Full Professor and Canada Research Chair
- 2010s: 2010-present - as Full Professor and Canada Research Chair
- 2010s: 2014-present - as Director, MS2Discovery Interdisciplinary Research Institute

2.2 Publications Summary Categorized

Category	Number
Books, Edited Volumes, Encyclopedic Entries:	22
Publications in Refereed Journals:	226
Full Papers in Refereed Conference Proceedings and Book Chapters:	141
Textbooks, Contributions to the Community and STEM Education:	17
Refereed Reports and Theses:	12
Technical Reports, Working papers, and Reports to Industry:	30
Extended Abstracts and Other Conference Contributions:	287
Total:	735

See also some of the presentations in Section 1.8, not included otherwise.