

Publications List

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1 Categorized List of Publications

1.1 Books, Edited Volumes and Encyclopedic Entries

1. [EB-42] Addressing Modern Challenges in the Mathematical, Statistical, and Computational Sciences, S. Wang, D. M. Kilgour, R. Makarov, R. Melnik, and H. Kunze (Eds.), [Springer Proceedings in Mathematics & Statistics Book Series](#), scheduled to appear May 31, 2024.
2. [EB-41] Special Issue "Recent Advances in the Application of Mathematical and Computational Models in Biomedical Science and Engineering 2.0", Eds.: Singh, S., Melnik, R., and Pueyo, E., Bioengineering, Scheduled to appear 2024.
3. [EB-40] Innovation in minimally invasive therapies, biosensing, and screening: Data-driven models, complex networks, and experiments, Eds.: Singh, S., Melnik, R., Repaka, R., and Saccomandi, P., *Frontiers in Medical Technology*, Vol. 5, Art. 1146068, 2023.
4. [EB-39] Special Issue "Recent Advances in the Application of Mathematical and Computational Models in Biomedical Science and Engineering", Eds.: Singh, S., Melnik, R., and Pueyo, E., Bioengineering, 2022-2023.
5. [EB-38] Recent Development in Mathematical, Statistical and Computational Sciences , D. M. Kilgour, H. Kunze, R. Makarov, R. Melnik, S. Wang (Eds.), *Springer Proceedings in Mathematics & Statistics Book Series*, 668 pages, ISBN 978-3-030-63590-9, 2021.
6. [EB-37] Recent Advances in Mathematical and Statistical Methods for Scientific and Engineering Applications, D. M. Kilgour, H. Kunze, R. Makarov, R. Melnik, S. Wang (Eds.), Springer, Volume 259, 646 pages, ISBN 978-3-319-99718-6, 2018.
7. [EB-36] Coupled Mathematical Models for Physical and Biological Nanoscale Systems and Their Applications, Bonilla, L.L., Kaxiras, E. and Melnik, R. (Eds.), Springer Book, Volume 232, 314 pages, ISBN 978-3-319-76598-3, 2018.
8. [EB-35] Recent Progress and Modern Challenges in Applied Mathematics, Modeling and Computational Science, Melnik, R., Makarov, R. and Belair, J. (Eds.), Book Series: Fields Institute Communications, Volume 79, Springer Book, 444 pages, ISBN 978-1-4939-6968-5, 2017¹.
9. [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.

¹ Also, separately indexed in the Web of Science and other databases our article in this volume: Modern Challenges and Interdisciplinary Interactions via Mathematical, Statistical, and Computational Models, Melnik, R., Makarov, R., and Belair J., Recent Progress and Modern Challenges in Applied Mathematics, Modeling and Computational Science, Book Series: Fields Institute Communications, Vol. 79, 3-14, 2017.

10. [\[EB-33\]](#) 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.
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12. [\[EB-31\]](#) 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.
13. [\[EB-30\]](#) 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.
14. [\[EB-29\]](#) 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.
15. [\[EB-28\]](#) 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.
16. [\[EB-27\]](#) 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.
17. [\[EB-26\]](#) 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.
18. [\[EB-25\]](#) 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.
19. [\[EB-24\]](#) 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, Hard- cover ISBN: 978-0-387-75888-6, 2009.
20. [\[EB-23\]](#) Special Issue on Mathematical and Computational Models for Transport and Coupled Processes in Micro- and Nano-Technology, Eds: Melnik, R.V.N., Povitsky, A. and Srivastava, D., Journal of the Nanoscience and Nanotechnology, 8 (7), 3626–3627, 2008.
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- 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.
22. [\[EB-21\]](#) Mathematical Models and Computational Methods for Nano- and Bio-Technologies, Melnik, R.V.N., SIAM News, 40 (8), 2007. This item is in the Contributions to the Community & Educational Books Category.
 23. [\[EB-20\]](#) Methods of Computational Mechanics for Industry, Science, and Technology, Eds. Melnik, R.V.N., Soulaïmani, A. and Voss, F., Special Issue of the International Journal for Computational Methods in Engineering Science and Mechanics, 8 (2), p. 51 2007.
 24. [\[EB-19\]](#) Special Issue on Computational Nanoscience¹, Modelling coupled and transport phenomena in nanotechnology, Editors: Melnik, R.V.N. and Povitsky, A., Special Issue of the Journal of Computational and Theoretical Nanoscience, 3(4), R1--R2, 2006.
 25. [\[EB-18\]](#) 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.
 26. [\[EB-17\]](#) 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.
 27. [\[EB-16\]](#) 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.
 28. [\[EB-15\]](#) Mathematics for Industry in Denmark, Melnik, R.V.N., ECMI Newsletter, Number 34, October, 2003: This item is in the Contributions to the Community & Educational Books Category.
 29. [\[EB-14\]](#) 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.
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 31. [\[EB-8\]](#) Difference Schemes for Modelling Nonlocally Coupled Processes in Semiconductor Devices, @KPI Academic Publishers (BN 4-5732-95), 1995, 64 pages.
 32. [\[EB-7\]](#) 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.
 33. [\[EB-6\]](#), [\[EB-5\]](#), [\[EB-4\]](#), [\[EB-3\]](#): These items are in the Contributions to the Community &

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

Educational Books Category.

34. [\[EB-2\]](#) 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.
35. [\[EB-1\]](#): This item is in the Contributions to the Community & Educational Books Category.

1.2 Papers in Archival Refereed Journals

Submitted, Revised, and Under Consideration

1. [\[EJ-S1\]](#) Data-driven dynamic models for materials with memory and their applications; Venkateshwarlu, A., Leon, C., Wang, L., and Melnik, R.; 2023.
2. [\[EJ-S2\]](#) Closed-form expressions for computing flexoelectric coefficients in textured polycrystalline dielectrics, Buroni, J. L., Melnik, R.; Rodriquez-Tembleque, L., Saez, A., and Buroni, F. C.; Submitted 2023.
3. [\[EJ-S3\]](#) Non-Markovian behaviour and the dual role of astrocytes in Alzheimer's disease development and propagation; Pal, S. and Melnik, R.; Submitted, 2023.
4. [\[EJ-S4\]](#) Non-Fourier bioheat transfer analysis in brain tissue during interstitial laser ablation: Analysis of multiple influential factors; Singh, S., Bianchi, L., Korganbayev, S., Namakshenas, P., Melnik, R., and Saccomandi, P.; Submitted, 2023.
5. [\[EJ-S5\]](#) Original and modified nonperturbative renormalization group equations of the BMW scheme at arbitrary order of truncation; Kaupuzs, J. and Melnik, R.; Submitted 2023.
6. [\[EJ-S6\]](#) Revised requirements for multiband Hamiltonians of Luttinger–Kohn theory for inverse design and other data-driven applications; Sytnyk, D. and Melnik, R.; 2023.
7. [\[EJ-S7\]](#) Hydrodynamic analysis of nanofluids flow over 45° inclined porous square cylinder using Darcy-Brinkman-Forchheimer model; Kaura, J., Ratan, J. K., Melnik, R., and Tiwari, A. K.; Submitted 2023.
8. [\[EJ-S8\]](#) A refined nonlocal multi-phase-lags thermoelasticity model for wave responses of a nano-medium subjected to different pulse shapes; Shakeriaski, F., Mirparizi, M., and Melnik, R.; Submitted 2023.
9. [\[EJ-S9\]](#) A review of mathematical and computational models incorporating the psychology of human behaviour; Thieu, T.K.T. and Melnik, R.; 2023.
10. [\[EJ-S10\]](#) Integrating emotion-specific factors into the dynamics of biosocial and ecological systems: An example of predator-prey models accounting for psychological effects; Saha, S. and Melnik, R.; 2023.

11. [\[EJ-S11\]](#) Bayesian inference and role of astrocytes in amyloid-beta growth with modelling of Alzheimer's disease using clinical data; Shaheen, H. and Melnik, R.; Submitted 2023.
12. [\[EJ-S12\]](#) Data-driven stochastic model for quantifying the interplay between amyloid-beta and calcium levels in Alzheimer's disease; Shaheen, S., Melnik, R., and Singh, S.; Submitted 2023.
13. [\[EJ-S13\]](#) Nonlocal models in biology and life sciences; Pal, S. and Melnik, R.; 2023.
14. [\[EJ-S14\]](#) Modelling the behavior of human crowds with interacting particle systems in active-passive population dynamics; Thieu, T.K.T. and Melnik, R.; Submitted 2022.
15. [\[EJ-S15\]](#) Reflecting stochastic dynamics of active-passive populations with applications in operations research and neuroscience; Thieu, T.K.T. and Melnik, R.; Submitted 2022.
16. [\[EJ-S16\]](#) Pattern alternations induced by nonlocal interactions; Pal, S., Melnik, R., and Banerjee, M.; Submitted, 2022.

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1. [\[EJ-310\]](#) Modeling of charging dynamics in electrochemical systems with a graphene electrode, Yavarian, M., Melnik, R., and Miskovic, Z., J. Electroanal. Chem., Vol. 946, Art. 117711, 2023.
2. [\[EJ-309\]](#) Flexoelectric enhancement in lead-free piezocomposites with graded inclusion concentrations and porous matrices; Krishnaswamy, J. A., Buroni, F. C.; Melnik, R.; Rodriguez-Tembleque, L., Saez, A.; Computers and Structures, Elsevier, Accepted 2023.
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4. [\[EJ-307\]](#) Astrocytic clearance and fragmentation of toxic proteins in Alzheimer's disease on large-scale brain networks; Shaheen, H., Pal, S., and Melnik, R.; Physica D: Nonlinear Phenomena, Vol. 454, Art.133839, 2023; DOI: 10.1016/j.physd.2023.133839
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7. [\[EJ-304\]](#) Corrections to scaling in the 3D Ising model: A comparison between MC and MCRG results, Kaupuzs, J. and Melnik, R.; Int. J. Mod. Phys. C, Vol. 34 (6), Art. 2350079, 2023; DOI: 10.1142/S0129183123500791

8. [[EJ-303](#)] Phenomenological modeling for magneto-mechanical couplings of martensitic variant reorientation in ferromagnetic shape memory alloys; Han, Y. X., Wang, L. X., and Melnik, R.; Applied Physics A - Materials Science & Processing, Vol. 128 (12), Art. 1066, 2022; DOI: 10.1007/s00339-022-06185-6
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10. [[EJ-301](#)] Analysis of Worldwide Time-Series Data Reveals Some Universal Patterns of Evolution of the SARS-CoV-2 Pandemic; Dankulov, M. M., Tadic, B., and Melnik, R.; Frontiers in Physics, Vol. 10, Art. 936618, 2022; DOI: 10.3389/fphy.2022.936618
11. [[EJ-300](#)] Nonlocal models in the analysis of brain neurodegenerative protein dynamics with application to Alzheimer's disease; Pal, S. and Melnik, R.; Scientific Reports, Vol. 12 (1), Art. 7328, 2022; DOI: 10.1038/s41598-022-11242-4
12. [[EJ-299](#)] Three-Phase-Lag Bio-Heat Transfer Model of Cardiac Ablation; Singh, S., Saccomandi, P., and Melnik, R.; Fluids, Vol. 7 (5), Art. 180, 2022; DOI: 10.3390/fluids7050180
13. [[EJ-298](#)] Effect of aspect ratio of enclosure of free convection from horizontal cylinder in Bingham plastic fluids; Baranwal, A. K., Gupta, A. K., Tiwari, A. K., and Melnik, R.; Chemical and Process Engineering, Vol. 43 (2), 271-277, 2022; DOI: 10.24425/cpe.2022.140831
14. [[EJ-297](#)] Multiscale co-simulation of deep brain stimulation with brain networks in neurodegenerative disorders; Shaheen, H., Pal, S., and Melnik, R.; Brain Multiphysics, Vol. 3, Art. 100058, 2022; DOI: 10.1016/j.brain.2022.100058
15. [[EJ-296](#)] Coupled effects of channels and synaptic dynamics in stochastic modelling of healthy and Parkinson's-disease-affected brains; Thieu, T. K. T. and Melnik, R.; AIMS Bioengineering, Vol. 9 (2), 213-238, 2022; DOI: 10.3934/bioeng.2022015
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 27. [\[EJ-284\]](#) A phenomenological model for thermally-induced hysteresis in polycrystalline shape memory alloys with internal loops; Han, Y., Du, H., Wang, L. and Melnik, R. ; Journal of Intelligent Material Systems and Structures, Vol. 33(9), 1170-1181, 2022. DOI: 10.1177/1045389X211048228
 28. [\[EJ-283\]](#) Mathematical Models with Nonlocal Initial Conditions: An Exemplification from Quantum Mechanics; Sytnyk, D. and Melnik, R.; Math. Comput. Appl., 2021, Vol. 26, Art. 73. DOI: 10.3390/mca26040073
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 30. [\[EJ-281\]](#) A differential model for the hysteresis in magnetic shape memory alloys and its application of feedback linearization; Du, H., Han, Y., Wang, L. and Melnik, R.; Applied

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 35. [\[EJ-276\]](#) Forced convection heat transfer study of a blunt-headed cylinder in non-Newtonian power-law fluids; Kaur, J., Melnik, R. and Tiwari, A. K.; Int. J. Chem. React. Eng.; Vol. 19; Art. 7; 2021, DOI: 10.1515/ijcre-2020-0170
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 40. [\[EJ-271\]](#) Analytical expressions to estimate the effective piezoelectric tensor of a textured polycrystal for any crystal symmetry; Buroni, Julieta L., Buroni, F., Cisilino, Adrián P., Melnik, R., Rodriguez-Tembleque, L. and Saez, A.; Mechanics of Materials, Vol. 151, Art. 103604, 2020, DOI: 10.1016/j.mechmat.2020.103604
 41. [\[EJ-270\]](#) A new method of solution of the Wetterich equation and its applications; Kaupuzs, J.

- and Melnik, R.; Journal of Physics A: Mathematical and Theoretical , Vol. 53, Art. 415002, 2020, DOI: 10.1088/1751-8121/abac96
42. [[EJ-269](#)] Analysis of Photosynthetic Systems and Their Applications with Mathematical and Computational Models; Badu, S., Melnik, R. and Singh, S.; Appl. Sci., Vol. 10(19), Art. 6821, 2020, DOI: 10.3390/app10196821
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1.5 Refereed Reports and Theses

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[[Scientific Roots](#)]⁷

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7. [[RR-5](#)] Application of the Method of Lines to Quasihydrodynamic Models for Semiconductor Device Simulation, Refereed Preprints Series on Design Automation in Electronics (@Technika), 49-1994, 10 pages.
8. [[RR-4](#)] Application of Semi-Implicit Difference Schemes and FCT Methods to Modelling Nonlocal Processes in Semiconductor Electron-Hole Plasma, Refereed Preprints Series on Design Automation in Electronics (@Technika), 48-1993, 9 pages.
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- 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.

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.

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1.7 Invited Lectures, Extended Abstracts, and Other Conference Contributions

1. [AC-14-2023] Nonequilibrium phenomena in life sciences, Invited Lecture at The 15th International Conference on Dynamical Systems Applied to Biology and Natural Sciences, Portugal, February 6 - 9, 2024.

2. [AC-13-2023] Effect of thermo-electromechanical coupling on the performance of lead-free piezoelectric materials (Akshayveer, A. and Melnik, R.), International Applied Mathematics, Modelling, and Computational Science Interdisciplinary Conference, Canada, August 14-18, 2023.
3. [AC-12-2023] Effect of environmental fluctuations on patterns in an ecosystem (Pal, S. and Melnik, R.), International Applied Mathematics, Modelling, and Computational Science Interdisciplinary Conference, Canada, August 14-18, 2023.
4. [AC-11-2023] The influence of coupled electromechanical effects on the behavior of active biological materials (Venkateshwarlu, A. and Melnik, R.), International Applied Mathematics, Modelling, and Computational Science Interdisciplinary Conference, Canada, August 14-18, 2023.
5. [AC-10-2023] Interplay between amyloid-beta and calcium dynamics in Alzheimer's disease: A physics-informed Bayesian approach (with H. Shaheen and S. Singh), International Applied Mathematics, Modelling, and Computational Science Interdisciplinary Conference, Canada, August 14-18, 2023.
6. [AC-9-2023] Relaxation of heavy hole spins in wurtzite semiconductor quantum dots (Prabhakar, S. and Melnik, R.), International Applied Mathematics, Modelling, and Computational Science Interdisciplinary Conference, Canada, August 14-18, 2023.
7. [AC-8-2023] Non-Fourier bioheat transfer analysis of interstitial laser ablation for treating brain tumors (Singh, S., Bianchi, L., Korganbayev, S., Namakshenas, P., Melnik, R., and Saccomandi, P.), International Applied Mathematics, Modelling, and Computational Science Interdisciplinary Conference, Canada, August 14-18, 2023.
8. [AC-7-2023] Integrating Emotion-specific Factors into the Dynamics of Bio-social and Ecological Systems: An Example of Predator-Prey Models Accounting for Psychological Effects (Saha, S. and Melnik, R.), International Applied Mathematics, Modelling, and Computational Science Interdisciplinary Conference, Canada, August 14-18, 2023.
9. [AC-6-2023] Modelling of Anti-Amyloid-Beta Therapy for Alzheimer's Disease (with S. Pal), IWBBIO-2023 (The 10 th International Work-Conference on Bioinformatics and Biomedical Engineering), Spain, July 12 - 14, 2023.
10. [AC-5-2023] Nonlocal and nonequilibrium phenomena in the analysis of neurodegenerative diseases and ecosystems, The 2023 International CMMSE (Computational and Mathematical Methods in Science and Engineering), Cadiz, Spain, July 3 -8, 2023.
11. [AC-4-2023] Coupled spatio-temporal dynamics and nonlocality in advanced mathematical models for the analysis of complex neurodegenerative disease pathologies (with S. Pal), ECOMAS Thematic Conference on Coupled Problems, COUPLED-2023, Chania, Greece, June 5 -7, 2023.
12. [AC-3-2023] Human Biosocial Dynamics with Complex Psychological Behaviour: Hierarchy of Mathematical Models and Nonequilibrium Phenomena (with T. Thieu), The XXVII Sitges Conference on Statistical Mechanics, Sitges, Spain, May 29 - June 2, 2023.
13. [AC-2-2023] Integrating SWOT altimetry and physics-based modelling to monitor, understand, and predict changes to arctic-boreal lakes (with P. Marsh, A. Berg, B. DeVries, R. Tutton, B. Walker, R. Thorpe, S. Yekeen, B. Dakin, and A. Fogal), CSA-SWOT Meeting, CSA Headquarters, Longueuil, QC, March 16, 2023.
14. [AC-1-2023] Spatio-temporal dynamics of complex systems, nonlocality, and pattern alternations (with S. Pal and M. Banerjee), The 14th Conference on Dynamical Systems Applied to Biology and Natural Sciences, Feb 5-8, 2023.
15. [AC-8-2022] The Influence of Amyloid-Beta on Calcium Dynamics in Alzheimer's Disease: A Spatio-Temporal Study (with H. Shaheen and S. Pal), The 22nd International Conference on Computational Science and Its Applications (ICCSA 2022), July 4 -7, 2022.
16. [AC-7-2022] Effects of noise on leaky integrate-and-fire neuron models for neuromorphic computing applications (with T. Thieu), The 22nd International Conference on Computational Science and Its Applications (ICCSA 2022), July 4 -7, 2022.
17. [AC-6-2022] The Role of Astrocytes in Alzheimer's Disease Progression (with S. Pal), The 9th International Work-Conference on Bioinformatics and Biomedical Engineering, Spain, June 27 -30, 2022.
18. [AC-5-2022] Effects of random inputs and short-term synaptic plasticity in a LIF conductance model for working memory applications (with T. Thieu), The 9th International Work-Conference on Bioinformatics and Biomedical Engineering, Spain, June 27 -30, 2022.
19. [AC-4-2022] A new method of functional truncations for solution of the nonperturbative RG equations (J. Kaupuz and R. Melnik), MECO47 in Statistical Physics, June 12 - 16, 2022.
20. [AC-3-2022] Material selection rules for optimal size-dependent flexoelectric enhancement in lead-free piezocomposites (with J. A. Krishnaswamy, L. Rodriguez-Tembleque, F. Buroni, and A. Saez), The Fourteenth International Conference on Computational Structures

Technology, Montpellier, France, Aug 23 - 25, 2022.

21. [AC-2-2022] Multiscale dynamics of coupled subcortical networks with deep brain stimulation (Shaheen, H., Pal, S., Melnik, R.), The 13th Conference on Dynamical Systems Applied to Biology and Natural Sciences, Virtual DSABNS, February 8-11, 2022.
22. [AC-1-2022] Understanding SARS-Cov-2 infection dynamics from the worldwide clustering (Tadic, B., Dankulov, M., Melnik, R.), The Debate Seminar Series on COVID-19 Forecast and Prediction (The Covid-19 Response Webinar), January 21, 2022.
23. [AC-16-2021] High-resolution stochastic dynamics underlying SARS-CoV-2 infection transmission and evolution (Tadic, B. and Melnik, R.), CCS-2021, Lyon, France, The Conference on Complex Systems, Oct 25 - 29, 2021.
24. [AC-15-2021] Mixed convection from semi-circular cylinder in Bingham plastic fluids: Adding buoyancy (Gupta, A., Ganesh, K. I., Melnik, R., Tiwari, A.K.), International Chemical Engineering Conference 2021 (IChec-2021), Virtual edition, Sept 16 - 19, 2021.
25. [AC-14-2021] Free convection heat transfer from semi-circular cylinder inside a square enclosure: Orientation effects (Mahajan, J.; Kaur, J.; Melnik, R.; Tiwari, A.K.), International Chemical Engineering Conference 2021 (IChec-2021), Virtual edition, Sept 16 - 19, 2021.
26. [AC-13-2021] Effect of aspect ratio of enclosure on free convection from horizontal cylinders in Bingham plastic fluids (Baranwal, A. K., Gupta, A.K., Tiwari, A.K., Melnik, R.), International Chemical Engineering Conference 2021 (IChec-2021), Virtual edition, Sept 16 - 19, 2021. of asymptomatic virus carriers by agent-based modelling approach (Tadic, B. and Melnik, R.), BelBI-2021 (Belgrade Bioinformatics International Conference), June 21 - 25, 2021.
27. [AC-12-2021] Deep brain stimulation with a computational model for the cortex-thalamus-basal ganglia system and network dynamics of neurological disorders (Shaheen, H. and Melnik, R.), Mathematical Biology Symposium at the 2021 International CMMSE (Computational and Mathematical Methods in Science and Engineering) conference and the First conference on high performance computing (CHPC), Cadiz, Spain, Presencial-Virtual edition, July 22 - 27, 2021.
28. [AC-11-2021] Hydrology of lake dominated, permafrost-controlled watersheds (Marsh, P., Tutton, R., Berg, A., DeVries, B., Melnik, R.), Advances in Observation Modelling of Cold-Regions Hydrology at the 2021 Annual Meeting of the Canadian Geophysical Union, June 24, 2021.
29. [AC-10-2021] Assessing the impact of asymptomatic virus carriers by agent-based modelling approach (Tadic, B. and Melnik, R.), BelBI-2021 (Belgrade Bioinformatics International Conference), June 21 - 25, 2021.
30. [AC-9-2021] Pathology dynamics in healthy-toxic protein interaction and the multiscale analysis of neurodegenerative diseases (Pal, S. and Melnik, R.), Multiscale Modelling and Simulation at the International Conference on Computational Science, Krakow, Virtual edition, ICCS-2021, June 16 - 18, 2021.
31. [AC-8-2021] Studies of Shape Memory Graphene Nanostructures via Integration of Physics-based Modelling and Machine Learning (Leon, C. and Melnik, R.), Physics Informed Machine Learning For Scientific Computing at the IX International Conference on Computational Methods for Coupled Problems in Science and Engineering (COUPLED PROBLEMS 2021), Sardinia, Italy, Virtual edition, June 13 - 16, 2021.
32. [AC-7-2021] Nonlocal Multiscale Interactions in Brain Neurodegenerative Protein Dynamics and Coupled Proteopathic Processes (Pal, S. and Melnik, R.), Coupled and Multi-Scale Bioengineering Problems at the IX International Conference on Computational Methods for Coupled Problems in Science and Engineering (COUPLED PROBLEMS 2021), Sardinia, Italy, Virtual edition, June 13 - 16, 2021.
33. [AC-6-2021] Combining Coupled Skorokhod SDE and Lattice Gas Frameworks for Multi-fidelity Modelling of Complex Behavioral Systems (Thieu, T. and Melnik, R., Keynote Talk), Uncertainty Quantification for Coupled Multi-Physics, Multi-Scale and Multi-Fidelity Modeling at the IX International Conference on Computational Methods for Coupled Problems in Science and Engineering (COUPLED PROBLEMS 2021), Sardinia, Italy, Virtual edition, June 13 - 16, 2021.
34. [AC-5-2021] A new method of solution of the Wetterich equation and its applications (Kaupuzs, J., Melnik, R.V.N., and Mahnle, R.), MECO-46 in Statistical Physics, May 11-13, 2021.
35. [AC-4-2021] Multiscale and machine learning based models for studying properties of microtubules in cellular domains, subject to the influence of coupled fields (Singh, S. and Melnik, R.), Predictive Multiscale Materials Design with Mathematical Modelling and Machine Learning at the SIAM Conference on Mathematical Aspects of Materials Science, May 17-28, 2021.
36. [AC-3-2021] Screening Energetically Stable Structures of LLZO garnets for Lithium-Ion Battery Applications with a Reduced Discrete Optimization Model (Leon, C., Bonilla, M. R., Garcia Daza, F., Akhmatkaya, E. and Melnik, R.), Predictive Multiscale Materials Design with Mathematical Modelling and Machine Learning at the SIAM Conference on Mathematical Aspects of Materials Science, May 17-28, 2021.
37. [AC-2-2021] Mathematical modeling of calcium-mediated exosomal dynamics in neural cells (Shaheen, H., Singh, S. and Melnik, R.), The 2

- nd International Nonlinear Dynamics Conference (NODYCON-2021), Sapienza University of Rome Based Online, February 16-19, 2021.
38. [AC-1-2021] Coupled thermo-electro-mechanical models of cardiac ablation at tissue-cellular scales and a role of microtubules (Singh, S. and Melnik, R.), 14th World Congress on Computational Mechanics (WCCM) ECCOMAS Congress 2020, Virtual Congress, January 11-15, 2021.
 39. [AC-6-2020] Impact of the latent infection transmissions on SAR-CoV-2 epidemics: agent-based modelling framework (Tadic, B. and Melnik, R.), The 2020 Conference on Complex Systems, Chair: Panos Argyrakis, Complex Systems Society, December 4-11, 2020.
 40. [AC-5-2020] Computational model of radiofrequency ablation of cardiac tissue incorporating thermo-electro- mechanical interactions (Singh, S. and Melnik, R.), The ASME's International Mechanical Engineering Congress and Exposition (IMECE2020), November 13-19, 2020.
 41. [AC-4-2020] Coupled electro-mechanical behavior of microtubules (Singh, S. and Melnik, R.), The 8th International Work-Conference on Bioinformatics and Biomedical Engineering (IWBBIO 2020), Granada, Spain, Sept 30 - Oct 2, 2020.
 42. [AC-3-2020] Agent-based modeling of latent infection transmissions in SARS-CoV-02 epidemics (Tadic, B., Melnik, R. and Andjelkovic, M.), The 5th Debate COVID-19 Forecast and Prediction (The Covid-19 Response Webinar), September 18 - 19, 2020.
 43. [AC-2-2020] Cardiac tissue deformation and the efficacy of radiofrequency ablation", The 4th Conference of the series MPF - Modelling the Physiological Flows (Modelling the Cardiac Function: Theory, Numerical Methods, Clinical Applications), Milano, Italy, 31 Aug - 2 Sept 2020.
 44. [AC-1-2020] Microtubule biomechanics and the effect of degradation of elastic moduli (Singh, S. and Melnik, R.), The 20th International Conference on Computational Science (ICCS 2020), Amsterdam, The Netherlands, Virtual presentation at the Workshop on Multi scale Modelling, Uncertainty Quantification and the Reliability of Computer Simulation, June 3 - 5, 2020.
 45. [AC-15-2019] Structure of simplicial complexes in human connectomes (with Tadic, B. and Andjelkovic, M), Higher-Order Connectivity and Correlations in Complex Systems, Workshop at Complexity Science Hub, Vienna, Austria, November 25-26, 2019.
 46. [AC-14-2019] Modeling static microstructure of shape memory alloy via Legendre wavelets collocation method, International Conference on Modeling, Simulation, Optimization and Algorithm, Sanya, (I. He, H. Du, Z. Ying, L. Wang, and R. Melnik), China, November 9-10, 2019.
 47. [AC-13-2019] Effects of heterogeneous surroundings on the efficacy of continuous radiofrequency for pain relief. Presented at the 2nd International Conference on Bioinformatics and Neurosciences (ICoBN 2019, joint event with ICVISIP 2019 , the 3rd International Conference on Vision, Image and Signal Processing), (S.Singh and R. Melnik), Vancouver, BC, Canada, August 26 - 28, 2019.
 48. [AC-12-2019] Multiscale stochastic modelling of cortical spreading depression dynamics in brain, The 5 th International Applied Mathematics, Modeling and Computational Science (AMMCS 2019), (H.Shaheen, R. Melnik and S. Singh), Waterloo, Canada, August 18-23, 2019.
 49. [AC-11-2019] Mathematical modeling of electro-thermal response on nerve tissue subjected to radiofrequency field, The 5 th International Applied Mathematics, Modeling and Computational Science (AMMCS 2019),(S.Singh and R. Melnik), Waterloo, Canada, August 18-23, 2019.
 50. [AC-10-2019] Numerical Analysis of Nanowire Resonators for Ultra- High Resolution Mass Sensing in Biomedical Applications, The 5 th International Applied Mathematics, Modeling and Computational Science (AMMCS 2019),(R. Fallahpour and R. Melnik), Waterloo, Canada, August 18-23, 2019.
 51. [AC-9-2019] Nonlinear effects in designing environmentally-friendly lead-free piezocomposites, , The V International AMMCS Interdisciplinary conference, (J A Krishnaswamy, F C Buroni, R. Melnik, F Garcia-Sanchez, L. Rodriguez- Tembleque, A Saez), Waterloo, Ontario, Canada, August 2019.
 52. [AC-8-2019] Environmentally-friendly piezoelectric composites for additive manufacturing: Nonlocal and nonlinear effects, IX ECCOMAS Thematic Conference on Smart Structures and Materials (SMART 2019), (J A Krishnaswamy, F C Buroni, R. Melnik, L Rodriguez-Tembleque, A Saez), Paris, France, July 2019.
 53. [AC-7-2019] Multiscale modelling of environmentally-friendly, high performance 3D printable piezoelectric materials: challenges and applications, The 9 th International Congress on Industrial and Applied Mathematics, (A. Saez, F. C. Buroni, F. G. Sanchez, A. J. Jagdish, L. Rodriguez-Tembleque, and R. Melnik,), July 15-19, 2019.
 54. [AC-6-2019] Dynamics changes in cells exposed to pulsed radiofrequency and focus on microtubules, The International Congress on Industrial and Applied Mathematics (ICIAM 2019), (S.Singh and R. Melnik,), Valencia, Spain, July 15-19, 2019.
 55. [AC-5-2019] Design of 3-D printable microstructured lead-free piezoelectric nanocomposites (with Saez, A., Buroni, F. C., Rodriguez-Tembleque, L., Krishnaswamy, J. A., and Garcia-Sanchez), The VIII International Conference on Coupled Problems in Science and

Engineering (Coupled-2019), Sitges, June 3 - 5, 2019.

56. [AC-4-2019] Geometrical design of new auxetic 3D printable piezoelectric composite materials, SIAM Conference on computational geometric design, (A J Krishnaswamy, F C Buroni, R. Melnik, F Garcia-Sanchez, L Rodriguez- Tembleque, A Saez), Simon Fraser University, Vancouver, Canada, June 2019.
57. [AC-3-2019] Computational analysis of pulsed radiofrequency ablation in treating chronic pain, The 19th International Conference on Computational Science (ICCS 2019), (S.Singh and R. Melnik), Faro, Algarve, Portugal, 12-14 June, 2019.
58. [AC-2-2019] Radiofrequency Ablation for Treating Chronic Pain of Bones: Effects of Nerve Locations (with Singh, S.), The 7th International Work-Conference on Bioinformatics and Biomedical Engineering (IWBBIO-2019), Granada, May 8-10, 2019.
59. [AC-1-2019] Aharonov-Bohm Phase and Valley Splitting in Strained Graphene PN Junction (with R Nepal, S Prabhakar, and A Kovalev), APS March Meeting 2019, Boston, MA, Bulletin of the American Physical Society, H14.00010, Vol. 64, No. 2, March 4 - 8, 2019.
60. [AC-6-2018] Modeling Impact Induced wave propagation in 1-D Isothermal Shape Memory Alloy Model via Legendre Wavelets Collocation Method (with He, X., Du, H., and Wang, L.), International Conference in Nonlinear Analysis and Boundary Value Problems (NABVP- 2018, Santiago de Compostela), September 4 - 7, 2018.
61. [AC-5-2018] Keynote talk: Strain control of engineering band structures of graphene nanoribbons, ECT, Sitges, Spain, September 2018.
62. [AC-4-2018] Modeling 1-D Isothermal Shape Memory Alloy Microstructure via Legendre Wavelets Collocation Method (with Wang, D., Wang, L., and He, X), The 1st International Conference on Numerical Modelling in Engineering (NME-2018), 28-29 August 2018.
63. [AC-3-2018] The dispersion and damping of the Dirac plasmon polariton of graphene in water (with Balakrishnan, S. and Miskovic, Z.), International Symposium on Antenna Technology and Applied Electromagnetics (ANTEM 2018), Waterloo, August 19 - 22, 2018.
64. [AC-2-2018] Photosynthesis and Its Biomedical Applications: NMR Properties of FMO Light harvesting Complexes (with Badu, S.), WCCM-2018, New York, July 2018.
65. [AC-1-2018] Keynote Congress Contributions: Dynamics and applications of smart structures and systems at the nanoscale, World Congress of Smart Materials – 2018, Osaka, Japan, March 6-8, 2018.
66. [AC-10-2017] A plasmonic temperature-sensing structure based on coupled circular cavities (with A. Tiwari), The 2 nd International Conference on Condensed Matter and Applied Physics (ICC 2017), November 24-25, 2017.
67. [AC-9-2017] Studying properties of RNA nanotubes with atomistic-to-continuum models (with S. Badu), The IV AMMCS International Conference, August 20 – 25, 2017.
68. [AC-8-2017] Nonlinear coupled effects in nanomaterials and their application for mechanical energy harvesting (with S. Bhowmick and M. Santoprete), The IV AMMCS International Conference, August 20 – 25, 2017.
69. [AC-7-2017] Dynamics of solar sailing (with A. Kuppa and M. Santoprete), The IV AMMCS International Conference, BOA contribution only, August 20 – 25, 2017.
70. [AC-6-2017] Nonlocal optical response of nanowire-film system: gap effects (with A. Tiwari), The IV AMMCS International Conference, August 20 – 25, 2017.
71. [AC-5-2017] Coupled nanostructures of ribonucleic acids: developing discrete-continuum models for large time-scale simulations (with S. Badu), The VIIth International Conference on Computational Methods for Coupled Problems in Science and Engineering, COUPLED PROBLEMS, Rhodes Island, June 12-14, 2017.
72. [AC-4-2017] Phase-field study of stress-induced polarization switching for vibration energy harvesting: material influence (with D. Wang and L. Wang), SMART-2017: The 8 th Conference on Smart Structures and Materials, and the 6th International Conference on Smart Materials and Nanotechnology in Engineering, Madrid, June 5-8, 2017.
73. [AC-3-2017] NMR properties of Fenna-Matthews-Olson light harvesting complex: photosynthesis and its biomedical applications (with S. Badu), IEEE UKRCON-2017, May 29 – June 2, 2017.
74. [AC-2-2017] Fundamental Molecular Complexes of Photosynthesis and Their Biomedical Applications (with S. Badu), International Work-Conference on Bioinformatics and Biomedical Engineering, April 26-28, 2017.
75. [AC-1-2017] Discrete-to-continuum models for biomedical applications of RNA nanotubes (with S. Badu), Plenary Talk, IEEE International

Conference on Electronics and Nanotechnology, Kyiv, 1 April 18-20, 2017.

76. [AC-15-2016] Coupled thermo-mechanical fields and graphene nanostructures: a multiphysics approach (with S. Prabhakar), Multiphysics-2016, Zurich, Switzerland, December 8, 2016.
77. [AC-14-2016] 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.
78. [AC-13-2016] 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.
79. [AC-12-2016] 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.
80. [AC-11-2016] Coupled Mathematical Models and Multiscale Phenomena at the Nanoscale with Their Applications, Invited Speaker, Computational Methods in Applied Mathematics (100 Years of Galerkin Method), BOA, p. 29-30, Finland, July 31 - August 6, 2016.
81. [AC-10-2016] Coupled effects in low dimensional nanosystems and their applications (with S. Prabhakar), CIMTEC Congress 2016 (The 5th International Conference on Smart and Multifunctional Materials Structures and Systems and the 11th International Conference on Medical Applications of Novel Biomaterials and Nanotechnology), Symposium on Micro/Nano Systems), Perugia, June 5-9, 2016.
82. [AC-9-2016] Modeling and analysis of spin splitting in strained graphene nanoribbons (with S. Prabhakar and L. Bonilla), The 30th European Conference on Modelling and Simulation (ECMS 2016), Regensburg, May 31 - June 3, 2016.
83. [AC-8-2016] Non-perturbative approaches to lattice models, glass-forming liquids, and biological nanostructures in solutions (with J. Kaupuzs), PLMMP-2016 (Physics of Liquid Matter: Modern Problems), May 27 - 31, 2016.
84. [AC-7-2016] Advanced simulations of RNA-based biological nanostructures (with S. Badu and S. Prabhakar), The 6th International Conference on Advanced Communications and Computation (INFOCOMP 2016), Valencia, May 22-26, 2016.
85. [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.
86. [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.
87. [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.
88. [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.
89. [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.
90. [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.
91. [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.
92. [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.
93. [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.
94. [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.

95. [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.
96. [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.
97. [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.
98. [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.
99. [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.
100. [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.
101. [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)
102. [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.
103. [AC-2-2015] Properties of RNA Nanotubes and Their Applications (with S. Badu and S. Prabhakar), Smart Structures NDE, San Diego, USA, March 8-12, 2015.
104. [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.
105. [AC-19-2014] 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.
106. [AC-18-2014] 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.
107. [AC-17-2014] 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.
108. [AC-16-2014] 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.
109. [AC-15-2014] 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.
110. [AC-14-2014] 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.
111. [AC-13-2014] 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.
112. [AC-12-2014] 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.
113. [AC-11-2014] 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.

114. [AC-10-2014] 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
115. [AC-9-2014] Spin control in graphene quantum dots and graphene nanribbon superlattices (with S. Prabhakar, S. Badu, L. Bonilla, and J. Reynolds), Theory Canada 9, Waterloo, June 12-15, 2014 (published as a brief article / report in Canadian Journal of Physics, Vol. 93, No. 9, 2015, p. 1003).
116. [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.
117. [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.
118. [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.
119. [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.
120. [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.
121. [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.
122. [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.
123. [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.
124. [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.
125. [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.
126. [AC-12-2013] Computational Analysis and Finite Element Modelling of Nanoscale Ripples in Graphene and Thermomechanical Effects (with S. Prabhakar), The 8th International Scientific and Technical Conference on Computer Science and Information Technologies (CSIT-2013), 11-16 November, 2013.
127. [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.
128. [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.
129. [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.
130. [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.
131. [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.
132. [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.

133. [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.
134. [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.
135. [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.
136. [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.
137. [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.
138. [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.
139. [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.
140. [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.
141. [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.
142. [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.
143. [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.
144. [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.
145. [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.
146. [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.
147. [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.
148. [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.
149. [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.
150. [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.
151. [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.
152. [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.

153. [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.
154. [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.
155. [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.
156. [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).
157. [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.
158. [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.
159. [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.
160. [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.
161. [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.
162. [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.
163. [AC-16-2010] Field emission efficiency of a carbon nanotube array under parasitic nonlinearities, Anand, S.V., Maha- patra, D.R., Sinha, N., Yeow, J.T.W., Melnik, R.V.N., The ASME 2010 International Mechanical Engineering Congress & Exposition (IMECE-2010) , Nov 12-18, Vancouver, 2010.
164. [AC-15-2010] Stress induced polarization switching and coupled hysteretic dynamics in ferroelectric materials, Wang, L., Melnik, R.V.N., The Second Asian Conference on Functional Materials and Structures (ACMFMS, 2010, Nanjing), MS1034, Oct 22-25, 2010.
165. [AC-14-2010] Numerical analysis of complex systems evolution with phase transformations at different spatial scales, Melnik, R.V.N., Dhote, R.P., Zu, J., Tsviliuk, O.I., Wang, L.X., The Tenth International Conference on Computational Structures Technology, Eds. Topping, B.H.V. et al, Civil-Comp Press, Stirlingshire, Scotland, 2010.
166. [AC-13-2010] Thermoelastic and thermoelectric effects in low dimensional nanostructures (with Prabhakar, S.), SPIE Optics+Photonics, San Diego, August 2010.
167. [AC-12-2010] Mathematical modeling and physical properties of carbon nanotube sensors with stone-wall defects (with Sinha, N. and Patil, S.), The 4th International Conference on Sensors Electronics and Microsystems Technology (SEMST-4), Book of Abstracts, p. 56, Odessa, July 2010, ISBN 978-966-190-339-4.
168. [AC-11-2010] Complex Systems in Finance: Monte Carlo Evaluation of First Passage Time Density Functions (with O. Tsviliuk, D. Zhang) , ICCS-2010, Amsterdam, The Netherlands, Workshop on Computational Finance and Business Intelligence, p. 32, June 2010.
169. [AC-10-2010] Studies of critical phenomena and phase transitions in large lattices with Monte-Carlo-based nonperturbative approaches (with J. Kaupuzs, J. Rimshans), Physics of Liquid Matters: Modern Problems, Kiev, p. 9, May 2010.
170. [AC-9-2010] Coupled PDEs and Bandstructure Calculations in Quantum Dots (with S. Patil, O. Tsviliuk), The 8th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Dresden University of Technology, Dresden, Germany, Book of Abstracts, p. 183, Special Session on Interface Problems (Caginalp, G., Glimm, J., and Miranville, A.), May 2010.
171. [AC-8-2010] FPT Problems in Modeling Complex Systems in Finance: A Monte Carlo Approach (with O. Tsviliuk, D. Zhang), The 8th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Dresden University of Technology, Dresden , Germany, Book of Abstracts, p. 311-312 (Scientific Computation and Numerical Algorithms), May 2010.

172. [AC-7-2010] Numerical analysis of phase transformations in finite size nanostructures with mesoscopic models (with L. Wang, R. Dhote, J. Zu), IV European Conference on Computational Mechanics, ECCM-2010, Paris, France, programme p. 26, Abstract 1535, 2 pages, May 2010.
173. [AC-6-2010] Modelling low dimensional nanostructures, their thermo-electromechanical properties and applications in engineering, physical and biological sciences, (with Patil, S.), International Scientific Conference, Simulation-2010, Kiev, p. 11, May 12-14, 2010,
174. [AC-5-2010] Bandstructures of quantum dots and coupled thermo-electromechanical phenomena (with S. Patil), Quantum Dots 2010, Nottingham, Abstract book, p. 367, April 2010.
175. [AC-4-2010] Evolutionary Monte Carlo Based Techniques for First Passage Time Problems in Credit Risk and Other Applications in Finance (with O. Tsviliuk and D. Zhang), EvoApplications, Evolutionary Computation, Istanbul, Conference Handbook, p. 47, April 2010.
176. [AC-3-2010] Phase transformations and shape memory effects in finitelength nanostructures (with L. Wang, O. Tsviliuk), Proc. SPIE, San Diego, USA, March 2010.
177. [AC-2-2010] Phase-field Approach to Studying Shape Memory Effects and Thermomechanical Properties of Low Dimensional Nanostructures (with L. Wang), The 2nd International Conference on Nanotechnology, University of Cambridge, UK, February 20-22, 2010.
178. [AC-1-2010] Coupled thermo-electromechanical effects in quantum dots and nanowires (with S. Patil, O. Tsviliuk), Proc. SPIE, San Francisco, USA, January 2010.
179. [AC-18-2009] Low dimensional nonlinear thermomechanical models describing phase transformations and their applications (with O. Tsviliuk, L. Wang), Mathematics And Computers In Science And Engineering, Proceedings of the 14th International Conference on Applied Mathematics, Spain, December 2009.
180. [AC-17-2009] Coupled Multiphysics Effects in Low Dimensional Nanostructures (with S. Patil, O. Tsviliuk), Multiphysics- 2009, Lille, France, December, 2009.
181. [AC-16-2009] Nonlinear Multiphysics Effects and Phase Transformations in finite length nanowires (with O. Tsviliuk, L. Wang), Multiphysics-2009, Lille, France, December 2009.
182. [AC-15-2009] Defect-enhanced flexoelectricity in nanostructures (Presenter: R. Melnik, co-author: S. Patil), Mesomechanics, Oxford University, June 2009.
183. [AC-14-2009] Applications of Stochastic PDEs to Modelling Complex Systems, International Conference on Stochastic Analysis and Random Dynamical Systems, Lviv University, June 14-20, 2009.
184. [AC-13-2009] Multiband Hamiltonians of the Luttinger Kohn theory and ellipticity requirements, VIIIth International Conference "Symmetry in Nonlinear Mathematical Physics", Kiev, Institute of Mathematics, June 21-27, 2009.
185. [AC-12-2009] Mathematical models and numerical methods for coupled nonlinear problems of dynamic thermoelasticity, Melnik, R. and Wang, L., International Conference on Applied Mathematics and Scientific Computing, Zadar, September 14-18, 2009, pp.34-35, 2009.
186. [AC-11-2009] High Resolution Surface Imaging using a Carbon Nanotube Array with Pointed Height Distribution, Roy Mahapatra, D., Anand, S.V., Sinha, N., and Melnik, R.V.N., Proc. 12th Annual NSTI Nanotech Conference, Houston, Texas, May 4-6, 2009, USA.
187. [AC-10-2009] Temperature and stress controlled surface manipulation in Ni-Al nano-layers (with V.K. Sutkar and D.R. Mahapatra), Proc. 12th Annual NSTI Nanotech Conference, Houston, Texas, May 4-6, 2009, USA.
188. [AC-9-2009] Stabilizing a Pulsed Field Emission from an Array of Carbon Nanotubes (Presenter: R. Melnik, co- authors: Roy Mahapatra, D., Anand, S.V., Sinha, N.), SPIE Optics+Photonics (7399), San Diego, California, USA, August 2-6, 2009.
189. [AC-8-2009] Modeling of GaN/AlN Heterostructure-Based Nano Pressure Sensors, Patil, S., Sinha, N., and Melnik, R.V.N., SPIE Optics+Photonics, San Diego, California, USA, August 2-6, 2009.
190. [AC-7-2009] Effect of thermal stresses on electronic properties of GaN/AlN nanowire superlattices (with S. Patil), The 8th International Congress on Thermal Stresses, June 1-4, 2009, University of Illinois, Urbana-Champaign.
191. [AC-6-2009] Accounting for nonlocal effects in electromechanical nano-beams via the Timoshenko model (with M. Toropova and J. Zu), The III International Conference on Computational Methods for Coupled Problems in Science and Engineering - Coupled Problems 2009, Italy, June 2009.
192. [AC-5-2009] Developing mesoscopic models describing phase transformations in finite nanowires and nanoplates (with L. Wang), The III

- International Conference on Computational Methods for Coupled Problems in Science and Engineering - Coupled Problems 2009, Italy, June 2009.
193. [AC-4-2009] Multiscale coarse-grained models for RNA nanostructures (Presenter: M. Paliy, co-author: R. Melnik and B. Shapiro), Sharcnet Research Day, WLU, May 15, 2009.
 194. [AC-3-2009] Size-dependent and strain rate effects in quantum dot nanostructures with molecular dynamics simulations (with S. R. Patil, D. R. Mahapatra and V. Sutkarar), 10th US Congress on Computational Mechanics, July 2009.
 195. [AC-2-2009] Inverse problems for multiband modeling and design of low dimensional nanostructures (with D. Sytnyk), 10th US Congress on Computational Mechanics, July 2009.
 196. [AC-1-2009] A mesoscopic model for Molecular Dynamics studies of RNA nanostructures (Presenter: R. Melnik, co-authors: M. Paliy and B. Shapiro), LSS Computational Systems Bioinformatics Conference, CSB2009, Stanford University, August 2009.
 197. [AC-24-2008] Forced dynamics and stability of RNA nanostructures, Paliy, M., Melnik, R.V.N., Shapiro, B., The Fourth International Conference "Multiscale Materials Modeling", MMM-2008 Tallahassee, FL, USA, 2008.
 198. [AC-23-2008] Computational implementation of a new multiphysics model for field emission from CNT thin films, imulation of RNA silencing pathway for time-dependent transgene transcription rate, Sinha, N., Mahapatra, D.R., Melnik, R.V.N., and Yeow, J.T.W., The International Conference on Computational Science (ICCS-2008), Krakow, June 23-25, 2008.
 199. [AC-22-2008] Modelling nonlinear electro-mechanical effects in nano-heterostructures using domain-decomposition methods (Presenter: R. Melnik, co-authors: L.X. Wang and M. Willatzen), CST/ECT-2008 (The Ninth International Conference on Computational Structures Technology and The Sixth International Conference on Engineering Computational Technology), Athens, Greece, September 2-5, 2008.
 200. [AC-21-2008] Phase transformations in finite length nanowires: analysis with mesoscopic models (Presenter: L. Wang, co-author: R. Melnik), CST/ECT-2008, Athens, Greece, September 2-5, 2008.
 201. [AC-20-2008] Temperature-dependent phase stability of CdS quantum dots from first-principle molecular dynamic calculations (Presenter: R. Melnik, co-author: Bin Wen), CST/ECT-2008, Athens, Greece, September 2-5, 2008.
 202. [AC-19-2008] Modelling of large reversible electrostriction in ferroelectric materials using 90 degree orientation switch- ing (Presenter: L. Wang, co-authors: R. Liu and R. Melnik), MRS International Materials Research Conference (Chongqing, June 9-12, 2008).
 203. [AC-18-2008] Field emission enhancement in a patterned CNT array cathode (Presenter: R. Melnik, co-authors: D.R. Mahapatra and N. Sinha), 50th Electronic Materials Conference, abstract - p. 76-77, University of California, Santa Barbara, June 27, 2008.
 204. [AC-17-2008] Feedback Linearization of Hysteretic Thermoelastic Dynamics of Shape Memory Alloy Actuators with Phase Transformations (Presenter: L. Wang, co-authors: R. Liu and R. Melnik), International Conference on Multifunctional Materials and Structures, Hong-Kong, July 28-31, 2008.
 205. [AC-16-2008] Field Emission Properties of Carbon Nanotube Arrays with Defects and Impurities (Presenter: R. Melnik, co-authors: D.R. Mahapatra, N. Sinha, and J.T.W. Yeow), The 11th Annual NSTI Nanotech Conference, Boston, Massachusetts, USA, June 1-5, 2008.
 206. [AC-15-2008] Design Optimization of Field Emission from a Stacked Carbon Nanotube Array (Presenter: R. Melnik, co-authors: D.R. Mahapatra, N. Sinha, and J.T.W. Yeow), The 11th Annual NSTI Nanotech Conference, Boston, Massachusetts, USA, June 1-5, 2008.
 207. [AC-14-2008] Three-dimensional strain distributions due to anisotropic effects in InGaAs semiconductor quantum dots (Presenter: D. Berettin, co-authors: B. Lassen, M. Willatzen, R. Melnik, and L. Lew Yan Voon), WCCM8/ECCOMAS2008, Published by CIMNE, 2 pp. The 8th World Congress on Computational Mechanics, Italy, June 30-July 5, 2008.
 208. [AC-13-2008] Thermodynamic and mechanical properties of simple RNA nanostructures (Presenter: R. Melnik, co- author: M. Paliy), WCCM8/ECCOMAS2008, Published by CIMNE, 2 pp. The 8th World Congress on Computational Mechanics, Italy, June 30-July 5, 2008.
 209. [AC-12-2008] Thermopiezoelectric Effects on Optoelectronic properties of CdTe/ZnTe Quantum Wires (Presenter: S. Patil, co-author: R. Melnik), International Conference on Optical, Optoelectronic and Photonic Materials and Applications, Edmonton, July 20-25, 2008.
 210. [AC-11-2008] Coupled multiscale problems in modeling low dimensional nanostructures, Invited speaker at the MI- TACS Workshop on Methodology of Validation and Verification, Abstract - p. 24, Banff, AB, April 28-May 1, 2008.
 211. [AC-10-2008] Forced dynamics and functionalization of RNA nanostructures (Presenter: M. Paliy, co-author: R. Melnik), Multiscale Materials Modeling (MMM-2008), October 2008, FL, USA.

212. [AC-9-2008] A Molecular Dynamics Study of the RNA hexagonal ring nanostructure (Presenter: M. Paliy, co-author: R. Melnik and B. Shapiro) Sharcnet Research Day, York University, Toronto, June 6, 2008.
213. [AC-8-2008] The effect of strain in CdTe/ZnTe quantum wires (Presenter R. Melnik, co-author: S. Patil), ICPS-2008, Rio de Janeiro, 29th International Conference on the Physics of Semiconductors, Abstract - p. 429-430, July 27 - August 1, 2008.
214. [AC-7-2008] Electronic structure and electron-phonon interaction in strained CNTs for field emission cathodes (N. Sinha, D.R. Mahapatra, and R.V.N. Melnik), SPIE Optics+Photonics 2008, San Diego, Abstract 7037-28, August 10-14, 2008.
215. [AC-6-2008] Accounting for nonlinear electrostrictive effects in modeling Nitride nanowires and quantum dots (Presenter R. Melnik, co-author: M. Bahrami-Samani), ICPS-2008, Rio de Janeiro, 29th International Conference on the Physics of Semiconductors, Abstract - p. 460-461, July 27 - August 1, 2008.
216. [AC-5-2008] Analysis of Phase Stability of CdS Quantum Dots with First Principle MD Calculations (Presenter: R. Melnik, co-author: B. Wen), Conference on Computational Physics 2008, CCP-2008, Ouro Preto, Abstract - CCP2008- 143, August 5-9, 2008.
217. [AC-4-2008] Computational Analysis of Thermopiezoelectric Effects in CdTe/ZnTe Nanostructures with a Multiphysics Model, (Presenter: R. Melnik, co-author: S. Patil), Conference on Computational Physics 2008, CCP-2008, Ouro Preto, Abstract - CCP2008-142, August 5-9, 2008.
218. [AC-3-2008] Coupled effects in low-dimensional nanostructures, Invited 1 hour talk at the World Congress of Nonlinear Analysts, Florida, USA, July 2-9, 2008.
219. [AC-2-2008] Phase transformations in nanostructures: models and applications (with L. Wang, B. Wen, and Jean Zu), The 7th AIMS International Conference on Dynamical Systems, Differential Equations and Applications, University of Texas at Arlington, May 18-21, Invited Talk, Special Session on "Thermomechanics and Phase Change" (by A. Miranville and U. Stefanelli), p. 172-173, 2008.
- [AC-1] Studying Properties of RNA Nanostructures and Their Potential Applications, Fields Institute, Invited talk (audio presentation is available from the Fields website) at the Workshop on Quantitative Cancer Modelling: Mathematical Models, Imaging and Bioinformatics, August 27, 2008: This item is in the Colloquium Presentation Section.
220. [AC-1-2008] Coupled electromechanical effects in nanostructures: electrostriction in the multidimensional case (with M. Bahrami-Samani and Jean Zu), The 7th AIMS International Conference on Dynamical Systems, Differential Equations and Applications, University of Texas at Arlington, May 18-21, Invited talk, Special Session on "Differential Equations of Mixed Type Arising in Engineering, Biology and Ecology" (by Z. Feng, Q. Lu, D.Y. Gao, and Q. Meng), p. 182, 2008.
221. [AC-17-2007] Simulation of RNA silencing pathway for time-dependent transgene transcription rate, Yang, X-D, Mahapatra, D.R., and Melnik, R.V.N., The 2007 International Symposium on Computational Models of Life Sciences (CMLS'07), Gold Coast, Queensland, Australia, December 17-19, 2007.
222. [AC-16-2007] Multi-Mode Phonon-Controlled Field Emission from Carbon Nanotubes: Modeling and Experiments, Sinha, N., Mahapatra, D.R., Yeow, J.T.W. and Melnik, R.V.N., The 2007 7th IEEE International Conference on Nanotechnology, Hong Kong, August 02-05, 2007.
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336. [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.
337. [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.
338. [AC-6-1997] A Hierarchy of Hyperbolic Macrodynamical Equations as a Model for Network Training, The IEEE International Symposium on Information Theory, Network Access Session, Ulm, Germany, 1997.
339. [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.
340. [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.
341. [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.
342. [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.
343. [AC-1-1997] Numerical Algorithms for First Order PDEs and Markov Chain Approximations, The 33 ANZIAM Conference, Lorne, Victoria, 2-6 February, 1997.

344. [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.
345. [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.
346. [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.
347. [AC-1-1996] Nonlinear Dynamical Systems: Coupling Information and Energy in Mathematical Models, 40th Conference of the Australian Mathematical Society, Adelaide, July, 1996.
348. [AC-6-1994] Numerical Analysis of Difference Solutions in Coupled Nonstationary Electroelastic Fields Modelling, International Congress of Mathematicians, Zurich, Switzerland, August 1-3, 1994.
349. [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.
350. [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.
351. [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.
352. [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.
353. [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.
354. [AC-3-1993] Existence of Generalized Solutions for Differential Systems of Electro- and Thermoelectroelasticity, International Conference on Degenerate and Mixed Differential Equations, Tashkent, Institute of Mathematics, Academy of Sciences, 23-25 November, 1993.
355. [AC-2-1993] Generalized Solutions of PDEs in Thermoelectroelasticity, The Fourth International Colloquium on Differential Equations, Plovdiv, 18-23 August, 1993.
356. [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.
357. [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.
358. [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.
359. [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.
360. [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.
361. [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.
362. [AC-4-1991] Numerical Modelling in Coupled Theory of Dynamic Electroelasticity, The Second International Colloquium on Differential Equations, Plovdiv, August 19-24, 1991.

⁸ See more at [this site](#).

363. [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.
364. [AC-2-1991] A Finite Element Method for Modelling Electrothermal Processes in Semiconductor Devices (with Limon- nik, A.E.), The 49th Scientific and Technical Conference of the Kiev Polytechnic Institute, 1991.
365. [AC-1-1991] Two-Dimensional Modelling of Impurity Redistributions in Silicon: Applying Local-One-Dimensional Difference Schemes, Plasm-Chemical Technology for Industrial Manufacturing and Electronic Engineering, Kiev, March 12-13, 1991.
366. [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.
367. [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.
368. [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.
369. [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.
370. [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

1. [IP-91] Advances in Nonperturbative Approaches: Methods, Algorithms, and Applications, Physics Frontiers Framework (with J. Kaupuzs), Apr 2022 - Aug 2023.
2. [IP-90] Interdisciplinary alliance in biosciences: from physics-based and data-driven multiscale modelling to medical applications, Coupled Problems Framework (with G. Guidoboni and R. Sacco), Feb 2022 - Jun 2023.
3. [IP-89] Complex dynamics of multiscale stochastic processes with applications to physical, biological and social networks (with B. Tadic and M.M. Dankulov), Nov 2020 - May 2023.
4. [IP-88] Innovation in Minimally Invasive Therapies, Biosensing, and Screening: Data-driven Models, Complex Networks, and Experiments (Melnik, R., Repaka, R., Saccomandi, P., Singh, S., Nov 2020 - Feb 2023.
5. [IP-87] Computer simulations for the integrity, high performance, and stability of electro- mechanical nanocomposites for high temperature applications in a green economy (with Dr. Maria Soledad Comisso, Hap2U Company and the group of Prof. Andres Saez), Nov 28, 2022.
6. [IP-86] Multiscale Material Modelling and Structural Health Monitoring (with F. M. H. Alaiabadi, L. Rodriguez-Tembleque, F. Buroni, and A. Saez), Nov 15, 2022.
7. [IP-85] Machine-Learning-Driven Atomistic Simulations for Energy and Biomedical Applications (with E. Akhmatskaya), Dec 2019 - Feb 2022.
8. [IP-84] Challenges of experimental data integration into the developed Alzheimer's disease modelling framework (with S. Singh, H. Shaheen, A. B. Ali, M. Desroches, and S. Rodrigues), Oct 2020 - Sept 2021.
9. [IP-83] Multidisciplinary Alliance in Biosciences: Modeling, Computing, Technology, and Clinical Applications, WCCM-ECCOMAS Framework, Jul 2020 - Jan 2021.
10. [IP-82] Workshop on Mathematical Machine Learning and Application (PSU-based virtual, Jinchao Xu and John Harlim), December 14-16, 2020.
11. [IP-81] Neural control in dynamic disease and pain management (with S. Perry), Sept 2019 - Sept 2020.
12. [IP-80] ESGI-150 - European Study Group with Industry (Construcciones y Auxiliar de Ferrocarriles CAF, Euskaltel, Iberdrola, Athletic Club, Consorcio de Aguas Bilbao Bizkaia, group of E. Akhmatskaya), October 21 - 25, 2019.
13. [IP-79] Multiscale modelling in biosciences (José Augusto Ferreira, University of Coimbra), July 2019.

14. [IP-78] Instituto Universitario de Matematica Pura y Aplicada (IUMPA, Valencia, Pedro Fernandez de Cordoba, Albert Ferrando, and Miguel Angel Garcia March), July 16, 2019.
15. [IP-77] Models for developing surface haptic technology in applications ranging from mobile devices and laptops to home appliances and to automobile industry (with Dr.Maria Soledad Comisso, Hap2U Company, in collaboration with the group of Prof. Andres Saez), July 4, 2019.
16. [IP-76] Energy technologies and multiscale computer simulations (Alejandro Franco, France and Javier Carrasco, CIC energigune), June 21, 2019.
17. [IP-75] Advances in Modelling Multiscale Systems and their Applications (with E. Akhmatkaya, Coupled Problems, Sitges), June 3-5, 2019.
18. [IP-74] Multiphase Smart Materials: Coupled Models, Nonlinear Dynamics, and Numerical Approximations - Part I, Series of Lectures for Graduate Students, University of Seville, May 2019.
19. [IP-73] Multiscale Mathematical Models and Their Applications in Science and Engineering -Part II, Series of Lectures for Graduate Students, University of Seville, May 2019.
20. [IP-72] Multidisciplinary Alliance in Biosciences: Modeling, Computing, Technology and Clinical Applications (with Riccardo Sacco and Giovanna Guidoboni), New York, July 2018.
21. [IP-71] Focus Program on Nanoscale Systems and Coupled Phenomena: Mathematical Analysis, Modeling, and Applications (with Bjorn Birnir, Ana Carpio, and Mitchell Luskin), Field Institute, April 1 – May 31, 2018.
22. [IP-70] Data Science and Analytics in Finance (with Joe Campolieti, Michael Friedman, Adam Metzler, Ivan Sergienko, Karl Wouterloot, Scotiabank GBM), March 9 - 31, 2017.
23. [IP-69] Workshop on Coupled Mathematical Models for Physical and Biological Nanoscale Systems and Their Applications, BIRS for Mathematical Innovation and Discovery (with Luis Bonilla and Tim Kaxiras), August 28 – September 2, 2016.
24. [IP-68] Mathematical modelling all the way to the nanoscale and coupled multiscale phenomena, BCAM Center of Excellence Scientific Seminar Series, April 14, 2016.
25. [IP-67] 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.
26. [IP-66] BCAM Workshop Quantitative Biomedicine for Health and Disease, Bilbao, Feb 24-25, 2016.
27. [IP-65] Multiple Scales and Their Coupling in Mathematical Modeling, PIMS Applied Mathematics Distinguished Speaker Seminar Series, USASK, April 9, 2015.
28. [IP-64] 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.
29. [IP-63] 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.
30. [IP-62] 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.
31. [IP-61] 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.
32. [IP-60] 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.
33. [IP-59] Workshop on graphical models: mathematics, statistics and computer science, Fields Institute, April 16-18, 2012.
34. [IP-58] BCAM networking scientific activities, January - August, 2012.

35. [IP-57] 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.
36. [IP-56] Workshop on the Genedes and Design projects funded by Tekes (Finish Funding Agency for Technology and Innovation), University of Javaskyla, May 4, 2011.
37. [IP-55] Multiple scales and coupled phenomena in mathematical models and Nature, MIT Department, University of Javaskyla, April 28, 2011.
38. [IP-54] Coupled mathematical models for low dimensional nanostructures, Institute of Advanced Studies, Bologna, March 1, 2011.
39. [IP-53] Workshop on interacting processes in random environments, Fields Institute, February 14-18, 2011.
40. [IP-52] Multi-Phase Materials, Coupled Nonlinear models, and numerical approximations, Department of Mathematics, University of Bologna, January 25, 2011.
41. [IP-51] Coupled effects in PDE-based models for nanoscience (Part III) Center of Excellence in Applied Mathematics BCAM, Bizkaia Technology Park, Spain, July 8, 2010.
42. [IP-50] Nonlinear effects in modelling low dimensional nanostructures NanoBio, University of the Basque Country UPV/EHU, Donostia - San Sebastian, Spain, June 23, 2010.
43. [IP-49] 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.
44. [IP-48] 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.
45. [IP-47] Mathematics of phase transformations and model coupling, Department of Mathematics & Statistics, University of Guelph, Canada, December 3, 2009.
46. [IP-46] 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.
47. [IP-45] Multiscale Modeling, Analysis, and Simulations (organized by the Michigan Center for Industrial and Applied Mathematics, Director: G. Bao, Networking Event), Michigan State University, March 27 - 28, 2008.
48. [IP-44] Models for Quantum Dots Accounting for Coupled Effects and Nonlinear Strain, Nanoscience Centre Seminar Series, The University of Cambridge, England, April 27, 2007.
49. [IP-43] Cayley Transform Techniques in PDEs and Their Numerical Approximations, The Isaac Newton Institute, The University of Cambridge, England, March 14, 2007.
50. [IP-42] 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.
51. [IP-41] Conservative Numerical Approximations and the Cayley Transform Technique in Applications to PDEs (Applying Geometric Integrators), International Centre for Mathematical Sciences, Edinburg, Scotland, April 24, 2007.
52. [IP-40] Time-dependent Models of Phase Transformations and Their Numerical Approximations, The Isaac Newton Institute, The University of Cambridge, England, May 1, 2007.
53. [IP-39] Quantum Dots: Paving the Way to Fully Coupled Models, Center for Quantum Device Technology, Clarkson University, NY, USA, March 30-31, 2006.
54. [IP-38] Coupling Physical Fields in Quantum Dots and Predicting Optoelectromechanical Properties, COM/Centre for Nanotechnology, Danish Technical University, Denmark, March 23, 2006.
55. [IP-37] Model Reductions and Model Couplings, University of Western Ontario, London, Canada, 01-02, 2006.
56. [IP-36] Nonlinear Strain Models in Studying Phase Transformations and Applications to Nanotechnology, University of Vermont, USA, 20-01, 2006.

57. [IP-35] 3D Phase Transformations, Syddansk University, Denmark, 16-12, 2005.
58. [IP-34] Workshop on Emergence of Spacetime, Perimeter Institute for Theoretical Physics, November 18, 2005.
59. [IP-33] Model Development for Coupled Nonlinear Processes and Their Numerical Approximations, University of Toronto, Canada, November 11, 2005.
60. [IP-32] Algorithmic Aspects of the Analysis of Energy Landscapes, Banff Workshop on Modeling Protein Flexibility and Motions, Canada, July 17-22, 2004.
61. [IP-31] Quantum Dot Structures: Basic Models and Computations of Coupled Electronic States Accounting for the Wetting Layer, CSIRO, Sydney, Australia, November 11, 2003.
62. [IP-30] Cavity Shape from Scanner Images with Applications to Biomedicine, CSIRO, Sydney, Australia, November 5, 2003.
63. [IP-29] Computational Models for Coupled Dynamic Problems in Science and Engineering, Louisiana Tech University, USA, May 12, 2003.
64. [IP-28] Bridging the Scales in Modelling Coupled Dynamic Systems: Analysis and Computation, Florida Institute of Technology, USA, April 1, 2003.
65. [IP-27] Mathematical Modelling of Coupled Systems and Phenomena: Theory and Applications, Wilfrid Laurier University, Waterloo, Canada, February 2003.
66. [IP-26] Keynote one-hour talk, Danish Mathematical Society Annual Meeting, November 1, 2002.
67. [IP-25] Computational Models for Coupled Dynamic Problems, McMaster University, Canada, September 2002.
68. [IP-24] Matter, Motion, and Coupling in Mathematical Models for Science and Engineering, New Mexico Tech, USA, March 2002.
69. [IP-23] Can We Control Nonlinear Dynamics of Shape Memory Alloys: A Mathematical Modelling Approach, Danfoss Control Engineering Seminar, Nordborg (Denmark), February 2002.
70. [IP-22] Call for Chair in Mathematics, Division of Information and Communication Sciences, Macquarie University (Sydney), November 2001.
71. [IP-21] Call for Professorship, Department of Mechanical Engineering, North Dakota State University, USA, November 2001.
72. [IP-20] 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.
73. [IP-19] Call for Professorship, Department of Mathematics and Statistics, Monash University (Melbourne), Australia, September 2001.
74. [IP-18] Mathematical Models of Coupled Field Theory and Their Applications, Endowed Chair Finalist Lecture Series, Georgia Southern University, USA, May 2001.
75. [IP-17] Introduction to Coupled Field Theory, Endowed Chair Finalist Lecture Series, Georgia Southern University, USA, May 2001.
76. [IP-16] Dynamic Behaviour of Granular Flows in Shear Experiments, CSIRO Computational Fluid Dynamics, Glen Erin, Victoria, November 2000.
77. [IP-15] Mathematical Modelling for Smart Material and Structure Technology, CSIRO Telecommunications & Industrial Physics, Sydney, May 2000.
78. [IP-14] Modelling, Simulation, and Control of Polymer Structures and Polymer Processing, CSIRO Mathematical and Information Sciences, Sydney, April 2000.
79. [IP-13] Applications of Coupled Field Theory to Mathematical Modelling and Control of Physical Systems, University of Southern Denmark and Danfoss, January 2000.
80. [IP-12] Mathematical Modelling and Systems Analysis: Examples From Coupled Field Theory and Pulp & Paper Industry (Part 2), Mid Sweden University, December 1999.

81. [IP-11] Mathematical Modelling and Numerical Analysis in Coupled Field Theory (Part 1), Mid Sweden University, August 1999.
82. [IP-10] Mathematical Modelling and Computer Simulation of Shape-Memory-Alloy Phase Transitions, CSIRO Mathematical and Information Sciences, Canberra, March 1999.
83. [IP-9] Analysis of Coupled Dynamic Systems: Mathematics, Statistics and Numerics, School of Computing and Mathematics, Deakin University, Victoria, December, 1998.
84. [IP-8] Nonsmooth Control of Dynamical Systems and Markov Chain Approximations, School of Mathematical and Statistical Sciences, La Trobe University, Melbourne, 24 September, 1998.
85. [IP-7] 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.
86. [IP-6] Computational Microelectronics as a Challenge in Applied Mathematics, Centre for Industrial and Applied Mathematics, University of South Australia, Adelaide, May 16, 1997.
87. [IP-5] Semiconductor Device Modelling and Mathematical Conservation Laws, Seminar in Applied Mathematics and Scientific Computation, University of Queensland, Brisbane, May 9, 1997.
88. [IP-4] Mathematical Models for Climate Studies, Centre for Industrial and Applied Mathematics, University of South Australia, Adelaide, June, 1996.
89. [IP-3] Modern Applications of Markov Chains, Centre for Industrial and Applied Mathematics Networking Event (organized by V. Gaitsgory, chair, and featuring E. Denardo, E. Feinberg, S. Sethi, and R. Tweedie), University of South Australia, June 2 - 3, 1995.
90. [IP-2] On Nonsmooth Optimal Control Theory, University of South Australia, School of Mathematics, Adelaide, May 17, 1995.
91. [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

Category	Number
Books, Edited Volumes, Encyclopedic Entries:	42
Publications in Refereed Journals:	326
Full Papers in Refereed Conference Proceedings and Book Chapters:	179
Textbooks, Contributions to the Community and STEM Education:	20
Refereed Reports and Theses:	12
Technical Reports, Working papers, and Reports to Industry:	30
Extended Abstracts and Other Conference Contributions:	370
Total:	979

Over the years, multiple news, videos, and outreach articles about research achievements, activities, and projects of Dr. Melnik and his group have been released in press and online. There are also numerous scientific repositories made for the world's leading data centers and scientific databases such as the Cambridge Crystallographic Data Centre (CCDC) and others.

<http://www.m3ai.wlu.ca/>

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Some additional presentations can also be found in Section 1.8, not included otherwise.

Further, not included in the table are multiple scientific repositories made to the world's leading data centers and scientific databases such as the Cambridge Crystallographic Data Centre (CCDC) and others.