

# Scientific Works Published during 2015-2024

2024

## (i) Monographs/Book/Textbook

1. **ა. კირთაძე**, ლებეგის ზომა და ინტეგრალი. გამომცემლობა „უნივერსალი“, თბილისი, 2024, 576 გვ.; ISBN 978-9941-33-903-5
2. **A. Kharazishvili**, Introduction to Combinatorial Methods in Geometry, Chapman and Hall/ CRC Press, 2024. <https://www.routledge.com/Introduction-to-Combinatorial-Methods-in-Geometry/Kharazishvili/p/book/9781032594705>
3. **V. Kokilashvili, A. Meskhi**, H. Rafeiro, S. Samko, Integral Operators in Non-Standard Function Spaces. Volume 3: Advances in Grand Function Spaces. Operator Theory: Advances and Applications, 298. *Birkhäuser/Springer, Cham*, 2024. <https://link.springer.com/book/10.1007/978-3-031-64983-7>
4. **ო. ფურთუხია**, ალბათურ-სტატისტიკური ამოცანები. თსუ-ს გამომცემლობა, 2024, 582 გვ.; ISBN 978-9941-36-246-0
5. **ო. მაგნიძე**, ფურიეს ერთგანზომილებიანი მწკრივები ერთი და ორი ცვლადის ფუნქციებისთვის. თსუ-ს გამომცემლობა, 2024, 378 გვ.; ISBN 978-9941-36-121-0

## (ii) papers

1. \*S. Adam-Day, N. Bezhanishvili, **D. Gabelaia**, V. Marra, Polyhedral completeness of intermediate logics: the nerve criterion. *J. Symb. Log.* **89** (2024), no. 1, 342-382; <https://doi.org/10.1017/jsl.2022.76>
2. \*A. Al-Rawashdeh, **B. Mesablishvili**, On Amitsur cohomology of monads. *J. Algebra Appl.* **24** (2025), no. 2, Paper No. 2550053; <https://doi.org/10.1142/S0219498825500537>
3. **M. Ashordia**, Criterion for the existence of bounded solutions on the real axis  $\mathbb{R}$  of linear systems of ordinary differential equations. *Trans. A. Razmadze Math. Inst.* **178** (2024), no. 2, 311-316, <https://rmi.tsu.ge/transactions/TRMI-volumes/178-2/178-2.htm>
4. \***M. Bakuradze**, Polynomial generators of  $\text{MSU}^{[1/2]}$  related to classifying maps of certain formal group laws. *Homology Homotopy Appl.* **26** (2024), no. 1, 1-14.
5. **M. Bakuradze**, Complex cobordism modulo spherical cobordism. *Trans. A. Razmadze Math. Inst.* **178** (2024), no. 3, 529-531, <https://rmi.tsu.ge/transactions/TRMI-volumes/178-3/178-3.htm>
6. V. Berikashvili, V. Jokhadze, E. Namgalauri, **O. Purtukhia**, On Martingale representations of non-smooth Brownian functionals. *J. Math. Sci. (N.Y.)* **280** (2024), no. 3, 480-487. <https://doi.org/10.1007/s10958-024-07128-7>
7. N. Bezhanišvili, L. Bussi, V. Ciancia, D. Fernandez-Duque, **D. Gabelaia**, Logics of polyhedral reachability. In: *Advances in Modal Logic*, Volume 15 (A. Ciabattoni, D. Gabelaia, I. Sedlár, Eds.), pp. 187-204, College Publications, London, 2024.
8. N. Bezhanišvili, V. Ciancia, **D. Gabelaia**, **M. Jibladze**, D. Latella, M. Massink, E. P. de Vink, Weak simplicial bisimilarity for polyhedral models and  $\text{SLCS}_{\{\eta\}}$ . In: Castiglioni, V., Francalanza, A. (eds) *Formal Techniques for Distributed Objects, Components, and Systems. FORTE*

- 2024, pp. 20-38. Lecture Notes in Computer Science, vol 14678. Springer, Cham, 2024; [https://doi.org/10.1007/978-3-031-62645-6\\_2](https://doi.org/10.1007/978-3-031-62645-6_2)
9. T. Bibilashvili, **S. Kharibegashvili**, On the solvability of the boundary value problem for one class of higher – order nonlinear hyperbolic systems. *Trans. A. Razmadze Math. Inst.* **178** (2024), no. 2, 317–319, <https://rmi.tsu.ge/transactions/TRMI-volumes/178-2/178-2.htm>.
  10. \*B. Blankleider, **A. N. Kvinikhidze**, Exact unified tetraquark equations. *Few-Body Syst.* **65** (2024), Article no. 59, 15 pp.; <https://doi.org/10.1007/s00601-024-01927-z>
  11. **T. Buchukuri, R. Duduchava**, G. Tephnadze, M. Tsaava, \$|\Gamma|\$-convergence for the bi-Laplace-Beltrami equation on hypersurfaces. *Extended abstracts 2021/2022 – Methusalem lectures*, 75–85, Trends Math., Res. Perspect. Ghent Anal. PDE Cent., 3, Birkhäuser/Springer, Cham, 2024; [https://doi.org/10.1007/978-3-031-48579-4\\_8](https://doi.org/10.1007/978-3-031-48579-4_8)
  12. D. Cardona, **R. Duduchava**, A. Hendrix, M. Ruzhansky, Generic Bessel Potential Spaces on Lie Groups. *Tbilisi analysis and PDE seminar*, 43–54, Trends Math., 7, Res. Perspect. Ghent Anal. PDE Cent., 7, Birkhäuser/Springer, Cham, 2024; [https://link.springer.com/chapter/10.1007/978-3-031-62894-8\\_5](https://link.springer.com/chapter/10.1007/978-3-031-62894-8_5)
  13. \*J. M. J. M. Casas, **E. Khmaladze**, M. Ladra, Notes on Leibniz  $n$ -algebras. *J. Geom. Phys.* **195** (2024), Paper No. 105035, 11 pp.; <https://doi.org/10.1016/j.geomphys.2023.105035>
  14. \*J. M. Casas, **E. Khmaladze**, M. Ladra, Wells-type exact sequence and crossed extensions of algebras with bracket. *Forum Math.* **36** (2024), no. 6, 1565–1584; <https://doi.org/10.1515/forum-2023-0355>
  15. \*G. Chkadua, E. Shargorodsky, Asymptotic analysis of fundamental solutions of hypoelliptic operators. *Georgian Math. J.* **31** (2024), no. 2, 205–228; <https://doi.org/10.1515/gmj-2023-2072>
  16. **O. Chkadua**, A. Danelia, Thermo-elastic and thermo-piezo-elastic interaction crack type boundary-transmission problems with regard to the microrotation. *Trans. A. Razmadze Math. Inst.* **178** (2024), no. 1, 27–44.
  17. **O. Chkadua**, A. Toloraia, Mixed type transmission dynamical problems with interior cracks of the thermo-piezo-electricity theory without energy dissipation. *Mem. Differ. Equ. Math. Phys.* **92** (2024), 69–90.
  18. V. Dashu, **N. Inassaridze**, Machine Learning in Financial Data Analysis and Forecasting, *Bull. Georgian Acad. Sci.* **18** (2024), no. 3, 36–41; <http://science.org.ge/bnas/vol-18-3.html>
  19. \*T. Datuashvili, O. Mucuk, N. Alemdar, T. Sahan, From cssc-crossed modules to categorical groups. *Adv. Stud.: Euro-Tbil. Math. J.* **17** (2024), no. 3, 1–24. DOI: 10.32513/asetmj/1932200824026
  20. **R. Duduchava**, Laplace-Beltrami equation on Lipschitz hypersurfaces in the generic Bessel potential spaces. *Extended abstracts 2021/2022 – Methusalem lectures*, 105–115, Trends Math., Res. Perspect. Ghent Anal. PDE Cent., 3, Birkhäuser/Springer, Cham, 2024; [https://link.springer.com/chapter/10.1007/978-3-031-48579-4\\_11](https://link.springer.com/chapter/10.1007/978-3-031-48579-4_11)
  21. **R. Duduchava**, M. Tsaava, M. Tutberidze, Mixed Boundary Value Problem for the Helmholtz Equation in a Model 2D Double Angular Domain. *Women in analysis and PDE*, 153–162, Trends Math., Res. Perspect. Ghent Anal. PDE Cent., 5, Birkhäuser/Springer, Cham, [2024], ©2024. [https://link.springer.com/chapter/10.1007/978-3-031-57005-6\\_17](https://link.springer.com/chapter/10.1007/978-3-031-57005-6_17)
  22. \*O. Dzagnidze, I. Tsivtsivadze, Schwarz gradients and differentiability for functions of two variables. *Real Anal. Exchange* **49** (2024), no. 1, 155–174; <https://doi.org/10.14321/realanalexch.49.1.1685750461>
  23. \*D. E. Edmunds, D. Makharadze, **A. Meskhi**, Embeddings and related topics in grand variable exponent Hajłasz-Morrey-Sobolev spaces. *Math. Inequal. Appl.* **27** (2024), no. 1, 201–217; doi: [10.7153/mia-2024-27-16](https://doi.org/10.7153/mia-2024-27-16)

24. D. Edmunds, **A. Meskhi**, On the weighted Rellich-Sobolev and Hardy-Sobolev inequalities in variable exponent lebesgue spaces. *Trans. A. Razmadze Math. Inst.* **178** (2024), no. 1, 155-159.
25. **A. Elashvili, M. Jibladze**, Computing with the stratification of the nullcone for spin<sub>15</sub>. *Trans. A. Razmadze Math. Inst.* **178** (2024), no. 3, 393-431, <https://rmi.tsu.ge/transactions/TRMI-volumes/178-3/178-3.htm>
26. **A. Elashvili, M. Jibladze**, G. Khimshiashvili, Remarks on invertible binomial singularities. *Bull. Georgian Natl. Acad. Sci. (N.S.)* **18** (2024), no. 1, 7-16.
27. **L. Ephremidze**, A numerical algorithm for matrix spectral factorization on the real line. In: Rogosin S. (ed.) *Analysis without Borders*. Dedicated to Ilya Spitkovsky in occasion of his 70th anniversary, Springer Nature, Cham, 2024; <https://arxiv.org/abs/2402.06381>
28. \***L. Ephremidze**, G. Mishuris, I. Spitkovsky, On the exact spectral factorization of rational matrix functions with applications to paraunitary filter banks. *J. Fourier Anal. Appl.* **30** (2024), no. 4, Paper No. 43, 24 pp. <https://doi.org/10.1007/s00041-024-10100-3>
29. **L. Ephremidze**, I. Spitkovsky, Random generator of orthogonal matrices in finite fields. In: *Proceedings of the Conference Future of Information and Communication – FICC-2024, Vol. 2*, 290-300, Lecture Notes in Networks and Systems, 920, Springer, 2024; [https://doi.org/10.1007/978-3-031-53963-3\\_20](https://doi.org/10.1007/978-3-031-53963-3_20).
30. **E. Gordadze, A. Meskhi**, M. A. Ragusa, On some extrapolation in generalized grand Morrey spaces with applications to PDEs. *Electron. Res. Arch.* **32** (2024), no. 1, 551-564; doi: [10.3934/era.2024027](https://doi.org/10.3934/era.2024027)
31. **G. Imerlishvili, A. Meskhi**, M. A. Ragusa, One-sided potentials in weighted central Morrey spaces. *J. Math. Sci. (N.Y.)* **280** (2024), no. 3, 374-384; <https://doi.org/10.1007/s10958-024-06997-2>
32. \***O. M. Jokhadze, S. S. Kharinegashvili**, Solution of some problems for the string vibration equation in a half-strip by quadratures. *Differ. Equ.* **60** (2024), no. 2, 169-179; <https://doi.org/10.1134/S0012266124020034>.
33. **O. Jokhadze, S. Kharibegashvili**, Dirichlet boundary value problem for the inhomogeneous equation of string oscillation in a square. *Reports of QUALITDE* **3** (2024), 107-111.
34. \***C. Jonas, G. Lavrelashvili**, J.-L. Lehners, Stability of axion-dilaton wormholes. *Phys. Rev. D* **109** (2024), no. 8, Paper no. 086022, 15pp.; <https://doi.org/10.1103/PhysRevD.109.086022>
35. **T. Kadeishvili**, Berikashvili's functor  $D$  for homotopy  $G$ -algebras. *Trans. A. Razmadze Math. Inst.* **178** (2024), no. 3, 477-487.
36. **G. Kapanadze, L. Gogolauri**, On one problem for a viscoelastic quadrangular plate (rhombus) with a circular hole. *Trans. A. Razmadze Math. Inst.* **178** (2024), no. 2, 231-236.
37. \***A. Kharazishvili**, Quasi-invariant measures on topological groups and  $\omega$ -powers. *Georgian Math. J.* **31** (2024), no. 1, 69-78; <https://doi.org/10.1515/gmj-2023-2073>
38. \***A. Kharazishvili**, Almost measurable functions on probability spaces. *Georgian Math. J.* **31** (2024), no. 5, 813--818. <https://doi.org/10.1515/gmj-2023-2120>
39. **A. Kharazishvili**, On uniform sets in Euclidean space  $\mathbb{R}^m$  and  $G$ -volumes. *Trans. A. Razmadze Math. Inst.* **178** (2024), no. 1, 161-163.
40. **A. Kharazishvili**, On some version of measurable uniformizations of plane sets. *Trans. A. Razmadze Math. Inst.* **178** (2024), no. 2, 321-323, <https://rmi.tsu.ge/transactions/TRMI-volumes/178-2/178-2.htm>
41. **A. Kharazishvili**, On some finite systems of vectors in the Euclidean plane. *Trans. A. Razmadze Math. Inst.* **178** (2024), no. 2, 325-329, <https://rmi.tsu.ge/transactions/TRMI-volumes/178-2/178-2.htm>
42. **S. Kharibegashvili**, Antiperiodic in time boundary value problem for one class of nonlinear higher-order partial differential equations. *Reports of QUALITDE* **3** (2024), 129-132.

43. \***S. S. Kharibegashvili**, B. G. Midodashvili, On the solvability of a boundary value problem for one class of nonlinear systems of high-order partial differential equations. (Russian) *Math. Sb.* **215** (2024), no. 6, 131-150 (in (Russian); translation in *Sb. Math.* **215** (2024), no. 6, 841-860; <https://doi.org/10.4213/sm10029e>
44. **E. Khmaladze**, Extensibility for derivations of abelian extensions of Leibniz n-algebras and Wells exact sequence. *Adv. Stud.: Euro-Tbil. Math. J.* **17** (2024), no. 3, 79-91.
45. \***A. Khvedelidze**, A. Torosyan, On the nonclassicality distance indicator of qudits. *Phys. Part. Nuclei* **55** (2024), 591-593; <https://doi.org/10.1134/S1063779624030493>
46. **I. Kiguradze**, On Two-Point Boundary Value Problems for Higher Order Singular Advanced Differential Equations. *Reports of QUALITDE* **3** (2024), 133-137.
47. **S. Kukudzhanov**, The influence of boundary conditions of rigid fastening on the dynamical thermostability of shells of revolution, with an elastic filler. *Trans. A. Razmadze Math. Inst.* **178** (2024), no. 2, 237-245.
48. \***G. Lavrelashvili**, New Euclidean axion wormholes. *PoS ICPPCRubakov2023* **455** (2024), 003, 15pp.; <https://pos.sissa.it/455/003>.
49. \***V. Lomadze**, Continuous dependence of linear differential systems on polynomial matrices. *IMA J. Math. Control Inform.* **41** (2024), no. 3, 458-477.
50. \***V. Lomadze**, Degeneration phenomenon in linear ordinary differential equations. *Georgian Math. J.* **31** (2024), no. 6, 999-1009.
51. **M. Mania**, R. Tevzadze, B. Chikvinidze, Black-Scholes model and martingale functions of a brownian motion. *Materials of the Conference: Applications of Stochastic Processes and Mathematical Statistics to Financial Economics and Social Sciences IX*, 20-21 November, 2024, volume 9, 6 pp.
52. **A. Meskhi**, Extrapolation in new weighted grand Morrey spaces beyond the Muckenhoupt classes. *J. Math. Anal. Appl.* **529** (2024), no. 2, Paper no. 127181, 18 pp.; <https://doi.org/10.1016/j.jmaa.2023.127181>
53. **A. Meskhi**, Extrapolation in grand Banach function spaces and applications. *Trans. A. Razmadze Math. Inst.* **178** (2024), no. 1, 165-169.
54. **A. Meskhi**, Boundedness criteria for linear and multilinear fractional integral operators in Lorentz spaces. *Trans. A. Razmadze Math. Inst.* **178** (2024), no 2, 331-333.
55. **A. Meskhi**, L. Natelashvili, Boundedness criteria for linear and multilinear fractional integral operators in Lorentz spaces. *Trans. A. Razmadze Math. Inst.* **178** (2024), no. 2, 331-333.
56. \***A. Meskhi**, H. Rafeiro, T. Tsanava, Predual space and Calderón construction for grand weighted Morrey spaces, and some applications. *Bol. Soc. Mat. Mex. (3)* **30** (2024), no. 2, Paper no. 47, 16 pp.; <https://doi.org/10.1007/s40590-024-00607-6>
57. **B. Mesablishvili**, About simultaneously reflective and coreflective subcategories of functor categories. *Adv. Stud.: Euro-Tbil. Math. J.* **17** (2024), no. 3, 101-111; DOI: 10.32513/asetmj/1932200824032
58. **G. Nadareishvili**, Relative Homological Algebra for Bivariant K-Theory. *Functor categories, model theory, algebraic analysis and constructive methods*, 117-132, Springer Proc. Math. Stat., 450, Springer, Cham, 2024; [https://doi.org/10.1007/978-3-031-53063-0\\_4](https://doi.org/10.1007/978-3-031-53063-0_4)
59. **N. Partsvania**, Initial value problem on an infinite interval for first order advanced differential equations, *Reports of QUALITDE* **3** (2024), 221-226.
60. \***T. Pirashvili**, Idempotents in nilpotent quotients and triangulated categories. *J. Pure Appl. Algebra* **228** (2024), no. 12, Paper no. 107755, 5pp.; <https://doi.org/10.1016/j.jpaa.2024.107755>

61. O. Purtukhia, Enhancing tail risk measurement: a practical approach to managing model risk of tail risk. *Bull. TICMI* **28** (2024), no. 2, 65–71, <https://www.emis.de/journals/TICMI>.
62. O. Purtukhia, E. Namgalauri, Constructive stochastic integral representation of some path-dependent Brownian functional. *Rep. Enlarged Sess. Semin. I. Vekua Inst. Appl. Math.* **38** (2024), 62–65; [https://www.viam.science.tsu.ge/enl\\_ses/vol38.htm](https://www.viam.science.tsu.ge/enl_ses/vol38.htm).
63. O. Purtukhia, V. Jokhadze, Explicit integral representation of path-dependent Brownian functionals, *Proceedings of the 23<sup>rd</sup> International Conference named after A. F. Terpugov* (2024 October, 20–26, Karshi, Uzbekistan). Tomsk State University Publishing, pp. 420–425 (2024) <https://cloud.mail.ru/stock/6P36zW5JAp794kd3cLsjLgsx>
64. S. Saneblidze, On the  $L_{\{\infty\}}$ -bialgebra structure of the rational homotopy groups  $\pi_* (\Omega Y)$ . *Trans. A. Razmadze Math. Inst. Bakuradz* **178** (2024), no. 3, 489–494.
65. \*N. Shavlakadze, Ts. Jamaspishvili, The singular integro-differential equations and its applications in the contact problems of elasticity theory. *Math. Methods Appl. Sci.* **47** (2024), no. 13, 11287–11298; <https://doi.org/10.1002/mma.7493>
66. N. Shavlakadze, G. Kekelia, The boundary-contact problem of dynamical viscoelasticity. ISSN 2346-8092; *Trans. A. Razmadze Math. Inst.* **178** (2024), no. 3, 495–502.
67. Sh. Tetunashvili, T. Tetunashvili, On universal functions representing certain classes of functions. *Trans. A. Razmadze Math. Inst.* **178** (2024), no. 2, 341–343.
68. T. Toronjadze, Characterization of variance optimal equivalent local martingale measure and stochastic volatility model with small diffusion coefficient. *Materials of the Conference: Applications of Stochastic Processes and Mathematical Statistics to Financial Economics and Social Sciences IX*, 20–21 November, 2024, volume 9, 9pp.
69. D. Zangurashvili, Effective codescent morphisms of  $n$ -quasigroups and  $n$ -loops. *Adv. Stud.: Euro-Tbil. Math. J.* **17** (2024), no. 3, 53–62; <https://arxiv.org/abs/2403.19187>

### (iii) papers published online

1. S. Adam-Day, N. Bezhaniashvili, D. Gabelaia, V. Marra, The intermediate logic of convex polyhedral. *Ann. Pure Appl. Logic*, 2024; <https://doi.org/10.48550/arXiv.2307.16600>.
2. N. Bezhaniashvili, L. Bussi, V. Ciancia, D. Fernández-Duque, D. Gabelaia, Logics of polyhedral reachability. Preprint, 2024; <https://doi.org/10.48550/arXiv.2406.16056>
3. \*T. Buchukuri, O. Chkadua, D. Natroshvili, Dynamical mixed boundary-transmission problems of the generalized thermo-electro-magneto-elasticity theory for composed structures. *Georgian Math. J.* (2024), <https://doi.org/10.1515/gmj-2024-2051>
4. D. Cardona, R. Duduchava, A. Hendrix, M. Ruzhansky, Global pseudo-differential operators on the Lie group  $G = (-1,1)^n$ . *Integral Equations Oper. Theory*, 2024; <https://arxiv.org/abs/2209.09751>
5. \*D. Edmunds, A. Meskhi, Weighted Rellich and Hardy inequalities in  $L^{p(x)}$  spaces. *Georgian Math. J.* (2024); <https://doi.org/10.1515/gmj-2024-2053>
6. \*L. Ephremidze, Algorithm for spectral factorization of polynomial matrices on the real line. *Adv. Oper. Theory* **10** (2025), no. 1, Paper No. 17.
7. M. Jibladze, E. Kuznetsov, An explicit Kuznetsov–Muravitsky enrichment. *Ann. Pure Appl. Logic*, 2024; <https://doi.org/10.48550/arXiv.2405.13802>
8. \*D. Kapanadze, E. Pesetskaya, Wave propagation on hexagonal lattices. *Georgian Math. J.* (2024); <https://doi.org/10.1515/gmj-2024-2035>.

9. \***A. Kharazishvili**, A Mazurkiewicz set containing the graph of a Sierpiński–Zygmund function, *Georgian Math. J.* (2024); <https://doi.org/10.1515/gmj-2024-2023>
10. \***S. Kharibegashvili**, B. Midodashvili, Time-antiperiodic and space-periodic boundary value problem for one semilinear partial differential equations. *Georgian Math. J.* (2024); <https://doi.org/10.1515/gmj-2024-2046>.
11. \***E. Khmaladze**, M. Ladra,  $q$ -Crossed modules and  $q$ -capability of Lie algebras. *Algebra Appl.*, 2024; <https://doi.org/10.1142/S0219498825501233>
12. **E. Kuznetsov**, Etale algebras over finite Heyting algebras. *Appl. Categ. Struct.*, 2024. <https://doi.org/10.48550/arXiv.2410.23442>
13. R. Meyer, **G. Nadareishvili**, A universal coefficient theorem for actions of finite groups on  $\mathcal{C}^*$ -algebras. *J. Math. Sci., Tokyo* (submitted); <https://arxiv.org/abs/2406.11787> (online)
14. \***D. Zangurashvili**, The binary products of algebras with genetic realization. *Georgian Math. J.* (2024); <https://doi.org/10.1515/gmj-2024-2060>.

# 2023

## (i) Monographs/Book/Textbook

1. A. Kharazishvili, *Some Topics of Foundations of Mathematics*, Publ. House "Universal", Tbilisi, 2023, 258 pp. (in Georgian).

## (ii) papers

1. \*Sh. Akhalaia, **M. Ashordia**, M. Talakhadze, On the well-posedness of nonlocal boundary value problems for a class of systems of linear generalized differential equations with singularities, *Georgian Math. J.* **30** (2023), no. 1, 1-18.
2. \*B. Anjaparidze, **M. Ashordia**, M. Kublashvili, On the numerical solvability of the initial problem with weight for ordinary linear differential systems with singularities, *Georgian Math. J.* **30** (2023), no. 5, 639-657.
3. B. Anjaparidze, **M. Ashordia**, N. Tophuridze, The opial type necessary and sufficient conditions for the convergence of difference schemes for the initial problem for linear systems of ordinary differential equations, *Trans. A. Razmadze math. Inst.* **177** (2023), no. 3, 331-347.
4. \***M. Ashordia**, On existence of bounded solutions on real axis  $R$  of linear systems of generalized ordinary differential equations. *Miskolc Math. Notes* **24** (2023), no. 1, 63-79.
5. **M. Ashordia**, On existence of bounded solutions on nonnegative real semiaxis of linear systems of generalized ordinary differential equations. *Reports of Seminar of I. Vekua Institute of Applied Mathematics* **49** (2023).
6. **M. Ashordia**, On the criterion of well-posedness of the modified Cauchy problem for singular systems of linear ordinary differential equations. *Reports of QUALITDE* **2** (2023), 3-9.
7. \***M. Bakuradze**, Polynomial generators of  $\text{msu}^*[1/2]$  related to classifying maps of certain formal group laws. *Homology, Homotopy and Applications* **25** (2023), no. 2, 15 pp.
8. **M. Bakuradze**, Special issue on Mathematics in the Wonder of the World PAMUKKALE, proceedings of the International Conference on Mathematics and Mathematics Education ICMME 2022, September 22-24, 2022 in Denizli, Turkey. Lead Editor: Malkhaz Bakuradze, Guest Editor: Amiran Gogatishvili, Abdulhamit Kucukaslan,  
<https://tcms.org.ge/Journals/ASETMJ/publications/supplement-issue-4-vol-16-2023/>
9. \***M. Bakuradze**, A. Gamkrelidze, On classifying map of the integral Krichever–Hoehn formal group law, *Georgian Math. J.* **30** (2023), no. 1, 47-51.
10. \*R. Bastos, R. de Oliveira, **G. Donadze**, N. R. Rocco,  $q$ -tensor and exterior centers, related degrees and capability. *Appl. Categ. Structures* **31** (2023), no. 1, Paper No. 2, 16 pp.
11. M. Beriashvili, M. Khachidze and **A. Kirtadze**, Absolutely negligible sets and their algebraic sums, *Trans. A. Razmadze Math. Inst.*, **177** (2023), no. 1, 131-133.

12. T. Bibilashvili, **S. Kharibegashvili**, Darboux type problem for a class of fourth-order nonlinear hyperbolic equations. *Mem. Differ. Equ. Math. Phys.* **89** (2023), 39-59.
13. \*V. Bovdi, **B. Mesablishvili**, Descent Cohomology and Factorizations of Groups. *Algebr. Represent. Theory* **26** (2023), no. 5, 1693-1712.
14. \*B. Chikvinidze, **M. Mania**, R. Tevzadze, Functional equations for the stochastic exponential. *Stoch. Dyn.* **23** (2023), no. 6, Paper No. 2350041.  
DOI:10.1142/s0219493723500417
15. B. Chikvinidze, **M. Mania**, A Generalization of the von Bertalanffy growth Model using the BSDE Approach. In: *Materials of the conference: Application of random processes and mathematical statistics in financial economics and social sciences VIII*, Georgian-American University, November 2023, pp. 30-41.
16. \*G. Chkadua, D. Natroshvili, Mathematical problems of dynamical interaction of fluids and multiferroic solids. *Appl. Anal.* **102** (2023), no. 18, 5224-5250.  
<https://doi.org/10.1080/00036811.2023.2171874>
17. O. Chkadua, A. Toloraia, Mixed type boundary-transmission problems with interior cracks of the thermo-piezo-electricity theory without energy dissipation. *Mem. Differ. Equ. Math. Phys.* **89** (2023), 79-98.
18. O. Chkadua, A. Ediberidze, Localized boundary-domain integral equations approach for Dirichlet pseudo-oscillation problem of the couple-stress elasticity, *Trans. A. Razmadze Math. Inst.* **177** (2023), no. 3, 367-389.
19. V. Ciancia, **D. Gabelaia**, D. Latella, M. Massink, E. P. de Vink, On Bisimilarity for Polyhedral Models and SLCS, In: Huisman, M., Ravara, A. (eds.) *Formal Techniques for Distributed Objects, Components, and Systems*. FORTE 2023. Lecture Notes in Computer Science, vol. 13910. Springer, Cham, 2023; [https://doi.org/10.1007/978-3-031-35355-0\\_9](https://doi.org/10.1007/978-3-031-35355-0_9).
20. \*T. Datuashvili, T. Şahan, Actions and semi-direct products in categories of groups with action. *Hacet. J. Math. Stat.* **52** (2023), no. 1, 103-113.
21. \*T. Datuashvili, T. Şahan, Pentactions and action representability in the category of reduced groups with action, *Georgian Math. J.* **30** (2023), no. 2, 195-209.
22. G. Donadze, T. Van der Linden, Schur- and Baer-type theorems for Lie and Leibniz algebras. *Bull. Belg. Math. Soc. Simon Stevin* **30** (2023), no. 3, 386-398.
23. \*R. Duduchava, Convolution equations on the Lie group  $G = (-1,1)$ , *Georgian Math. J.* **30** (2023), no. 5, 683-702. <https://doi.org/10.1515/gmj-2023-2035>
24. D. E. Edmunds, D. Makharadze, **A. Meskhi**, Embeddings and regularity of potentials in grand variable exponent function spaces, *Trans. A. Razmadze Math. Inst.* **177** (2023), no. 2, 309-314.
25. D. Gabelaia, **M. Jibladze**, “Explaining” the Ardeshir-Ruitenburg operator, *Language, Logic, Computation*, VII (2023), 87-93;  
[https://www.researchgate.net/profile/Mamuka\\_Jibladze/publication/376032030\\_EXPLAINING-THE-ARDESHIR-RUITENBURG-OPERATOR/links/65676f4c3fa26f66f439b5fd/EXPLAINING-THE-ARDESHIR-RUITENBURG-OPERATOR.pdf](https://www.researchgate.net/profile/Mamuka_Jibladze/publication/376032030_EXPLAINING-THE-ARDESHIR-RUITENBURG-OPERATOR/links/65676f4c3fa26f66f439b5fd/EXPLAINING-THE-ARDESHIR-RUITENBURG-OPERATOR.pdf)

26. \***R. Gachechiladze, A. Gachechiladze**, Boundary contact problems with regard to friction of couple-stress viscoelasticity for inhomogeneous anisotropic bodies (quasi-static cases), *Georgian Math. J.* **30** (2023), no. 6, 855-871.
27. \***L. Grafakos, A. Meskhi**, On sharp Olsen's and trace inequalities for multilinear fractional integrals. *Potential Anal.* **59** (2023), no. 3, 1039-1050.
28. \***G. Imerlishvili, A. Meskhi**, Weighted inequalities for one-sided multilinear fractional integrals. *Positivity* **27** (2023), no. 1, Paper No. 1, 21 pp. <https://doi.org/10.1007/s11117-022-00954-6>
29. **G. Imerlishvili, A. Meskhi, M. A. Ragusa**, One-sided potentials in weighted central Morrey spaces, *Trans. A. Razmadze Math. Inst.* **177** (2023), no. 3, 497-501.
30. **N. Inassaridze, M. Khazaradze, E. Khmaladze, B. Mesablishvili**, On one-way ring homomorphisms, *J. Math. Sci.* **275** (2023), 728-734.
31. \***H. Inassaridze**, Equivariant algebraic  $\$K\$$ -functors for  $\$|\Gamma|$ -rings. *Eur. J. Math.* **9** (2023), no. 4, 115.
32. \***O. Jokhadze**, On the von Karman's equation in the nonlinear theory of gas dynamics. *Miskolc Math. Notes* **24** (2023), no. 1, 197-208.
33. **O. Jokhadze, S. Kharibegashvili**, On the solvability of a periodic problem in an infinite stripe for second order hyperbolic equations. *Reports of QUALITDE* **2** (2023), 77-79.
34. \***O. M. Jokhadze, S. S. Kharibegashvili, N. N. Shavlakadze**, A mixed problem for a class of second-order nonlinear hyperbolic systems with Dirichlet and Poincaré boundary conditions. (Russian) *Mat. Zametki* **114** (2023), no. 5, 702-720.  
<https://doi.org/10.4213/mzm13738>
35. \***C. Jonas, G. Lavrelashvili, J. L. Lehners**, Zoo of axionic wormholes. *Phys. Rev. D* **108** (2023), no. 6, Paper No. 066012, 20 pp. <https://doi.org/10.1103/PhysRevD.108.066012>
36. **T. Kadeishvili**,  $\$A_{\infty}$ -Algebra structure in cohomology and its applications, in: *Summer School/Conference "Algebra, Topology and Analysis:  $C^*$  and  $A_\infty$ -algebras"*, Lecture Notes, Ivane Javakhishvili Tbilisi State University, 2023, 16-60;  
[https://www.tsu.ge/assets/media/files/48/konferenciebi/Algebra\\_Topology\\_and\\_Analysis.pdf](https://www.tsu.ge/assets/media/files/48/konferenciebi/Algebra_Topology_and_Analysis.pdf).
37. **T. Kadeishvili**,  $A(\infty)$ -algebra structure in the cohomology and cohomologies of a free loop space. *J. Math. Sci.* **275** (2023), no. 6, 735-743. DOI 10.1007/s10958-023-06715-4
38. **G. Kapanadze, L. Gogolauri**, On one problem of the plane theory of viscoelasticity for a circular plate with polygonal hole, *Trans. A. Razmadze math. Inst.* **177** (2023), no. 3, 407-411.
39. **D. Kapanadze, E. Pesetskaya**, Exterior diffraction problems for a triangular lattice. *Math. Mech. Solids* **28** (2023), no. 12, 2596-2609. DOI: 10.1177/1081286523117111
40. **D. Kapanadze, E. Pesetskaya**, Half-plane diffraction problems on a triangular lattice. *J. Engng. Math.* **138** (2023), Paper No. 5, 15 pp. DOI: 10.1007/s10665-022-10252-5
41. \***A. Kharazishvili**, Non-measurable products of absolutely negligible sets in uncountable solvable groups, *Georgian Math. J.*, **30** (2023), No 3, 397-402. <https://doi.org/10.1515/gmj-2023-2007>
42. **A. Kharazishvili**, On some version of random variables, *Trans. A. Razmadze math. Inst.*, **177** (2023), no. 1, 143-146.

43. A. Kharazishvili, On pi-weights and extensions of invariant measures, *Trans. A. Razmadze math. Inst.* **177** (2023), no. 2, 315-317.
44. S. Kharibegashvili, Antiperiodic problem for one class of nonlinear partial differential equations. *Reports of QUALITDE* **2** (2023), 87-90.
45. S. Kharibegashvili, B. Midodashvili, The boundary value problem for one class of higher-order semilinear partial differential equations. *Proc. Inst. Math. Mech. Natl. Acad. Sci. Azerb.* **49** (2023), no. 1, 154-171.
46. \*A. Khvedelidze, Generalizing Stratonovich-Weyl Axioms for Composite Systems. *Phys. Part. Nuclei* **54** (2023), 1025-1028. <https://doi.org/10.1134/S1063779623060175>
47. I. Kiguradze, Blow-up solutions of the Cauchy problem for nonlinear delay ordinary differential equations. *Reports of QUALITDE* **2** (2023), 91-95.
48. I. Kiguradze, N. Partsvania, rapidly growing and blow-up solutions to higher order nonlinear delay ordinary differential equations. *Mem. Differ. Equ. Math. Phys.* **90** (2023), 39-54.
49. A. Kirtadze, On some properties of uniform distribution sequences, *Trans. A. Razmadze math. Inst.* **177** (2023), no. 3, 501-504.
50. \*V. Kokilashvili, A. Meskhi, Rubio de Francia's weighted extrapolation in mixed-norm spaces and applications. *Math. Nachr.* **296** (2023), no. 9, 3929-3947.
51. \*V. Kokilashvili, A. Meskhi, Boundedness of operators of harmonic analysis in grand variable exponent Morrey spaces. *Mediterr. J. Math.* **20** (2023), no. 2, Paper No. 71, 25 pp. <https://doi.org/10.1007/s00009-023-02267-8>
52. \*V. Kokilashvili, A. Meskhi, A Complete characterization of the generalized multilinear Sobolev inequality in grand product Lebesgue spaces defined on non-homogeneous spaces, *Results Math.* **78** (2023), no. 5, Paper No. 181, 17 pp. DOI : 10.1007/s00025-023-01959-7.
53. S. Kukudzhanov, Dynamical thermostability of orthotropic shells of revolution with an elastic filler, *Trans. A. Razmadze math. Inst.* **177** (2023), no. 3, 413-422.
54. \*A. Kvinikhidze, B. Blankleider, Unified triquark equations. *Phys. Rev. D* **108** (2023), no. 5, Paper No. 054016, 12 pp. <https://doi.org/10.1103/PhysRevD.108.054016>
55. \*A. Kvinikhidze, B. Blankleider, Unified tetraquark equations. *Phys. Rev. D* **107** (2023), no. 9, Paper No. 094014, 20 pp. <https://doi.org/10.1103/PhysRevD.107.094014>
56. \*V. Lomadze, Differential equations defined by (convergent) Laurent series. *J. Algebra Appl.* **22** (2023), no. 4, Paper No. 2350087, 14 pp.
57. \*M. Mania, R. Tevzadze, Martingale transformations of Brownian motion with application to functional equations. *Stochastics* **95** (2023), no. 3, 377-395, [doi.org/10.1080/17442508.2022.2084341](https://doi.org/10.1080/17442508.2022.2084341)
58. A. Meskhi, Boundedness weighted criteria for multilinear Riemann-Liouville integral operators, *Trans. A. Razmadze Math. Inst* **177** (2023), no. 1, 147-148.
59. A. Meskhi, Two-weight criteria for multiple fractional integrals in mixed-normed Lebesgue spaces, *Trans. A. Razmadze Math. Inst.*, **177** (2023), no. 3, 505-507.
60. A. Meskhi, T. Tsanava, On some spaces with mixed norms, *Trans. A. Razmadze Math. Inst.* **177** (2023), no. 2, 319-326.
61. A. Meskhi, H. Rafeiro, T. Tsanava, Duality and interpolation for weighted grand Morrey spaces, *Trans. A. Razmadze Math. Inst.* **177** (2023), no. 1, 149-155.

62. R. Mnatsakanov, **O. Purtukhia**, *Approximations for Estimating Some Options Using the Inverse of the Laplace Transform. Modern Optimization Methods for Decision Making Under Risk and Uncertainty* (Edited by A. A. Gaivoronski, P. S. Knopov, V. A. Zaslavskyi), ISBN 9781032196411, DOI: 10.1201/9781003260196, CRC Press (Taylor & Francis Group, LLC), (2023), Chapter VII, pp. 132-153, <https://www.routledge.com/Modern-Optimization-Methods-for-Decision-Making-Under-Risk-and-Uncertainty/Gaivoronski-S-Knopov-A-Zaslavskyi/p/book/9781032196411>, 22 pp.
63. G. Nadareishvili, Approximations of Kasparov Categories of  $C^*$ -Algebras, in: in: *Summer School/Conference “Algebra, Topology and Analysis:  $C^*$  and  $A_\infty$ -algebras”*, Lecture Notes, Ivane Javakhishvili Tbilisi State University, 2023, 16-60;  
[https://www.tsu.ge/assets/media/files/48/konferenciebi/Algebra\\_Topology\\_and\\_Analysis.pdf](https://www.tsu.ge/assets/media/files/48/konferenciebi/Algebra_Topology_and_Analysis.pdf)
64. \*E. Namgalauri, **O. Purtukhia**, On the stochastic integral representation of Brownian functionals, *Georgian Math. J.* **30** (2023), no. 3, 417-424; <https://doi.org/10.1515/gmj-2023-2001>
65. N. Partsvania, Rapidly growing solutions to two-dimensional nonlinear differential systems. *Reports of QUALITDE* **2** (2023), 154-158.
66. A. Patchkoria, On derived functors of semimodule-valued functors II. *Bull. Georgian Natl. Acad. Sci. (N.S.)* **17** (2023), no. 2, 7-14.
67. \*M. Pirashvili, T. Pirashvili, Symmetric cohomology of groups and Poincaré duality. *J. Algebra* **614** (2023), 177-198.
68. T. Pirashvili, G. Donadze, On low dimensional cohomology of crossed modules with nontrivial coefficients. *Advanced Studies: Euro-Tbilisi Math. J.* **16** (2023), no. 4, 143-173.  
<https://tcms.org.ge/Journals/ASETMJ/publications/volume-16-no-4-2023/>
69. O. Purtukhia, V. Jaoshvili, V. Jokhadze, Nonlinear filtering problem and martingale representation. *Rep. Enlarged Sess. Semin. I. Vekua Inst. Appl. Math.* **37** (2023), 19-22; [https://www.viam.science.tsu.ge/enl\\_ses/vol36/vol37.htm](https://www.viam.science.tsu.ge/enl_ses/vol36/vol37.htm)
70. O. Purtukhia, V. Jokhadze, E. Namgalauri, Martingale representation and the problem of nonlinear filtration. In: *Proceeding of the Conference PCI 2023*, 2nd volume; Baku, Publishing Hause of Institute of Cybernetics, National Academy of Sciences of Azerbaijan; 4 pp.
71. O. Purtukhia, V. Jokhadze, AI Model Risk for Financial Institutions: Opportunities and Challenges. In: *Proceeding of 13th International IEEE Conference Dependable Systems, Services and Technologies*, Athens, Greece, 2023, 4 pp.  
<https://easychair.org/conferences/?conf=dessert2023>
72. O. Purtukhia, Z. Zerakidze, Consistent estimators of parameters of statistical structures, *Trans. A. Razmadze math. Inst.* **177** (2023), no. 1, 105-109.  
<https://rmi.tsu.ge/transactions/TRMI-volumes/177-1/177-1.htm>
73. O. Purtukhia, Z. Zerakidze, Constructive Integral Representation of Non-smooth Brownian Functional. In: *Proceedings of the 21th International Conference “Information Technologies and Mathematical Modeling”* (ITMM-2022) named after A. F. Terpugov. Tomsk State University Publishing, Tomsk, 2023, pp. 337-342.

74. **O. Purtukhia**, Z. Zerakidze, Consistent Hypothesis Testing Criteria in the Banach Space of Measures for Haar Statistical Structures. *Bulletin of TICMI* **27** (2023), no. 2, 51-57; <https://www.emis.de/journals/TICMI/>
75. **L. Shapakidze**, Effect of Prandtl numbers on the transitions of diverging and converging heat-conducting flows in an annulus, *Trans. A. Razmadze math. Inst.* **177** (2023), no. 3, 509-515.
76. \***N. Shavlakadze**, Some effective solutions for Prandtl's type integro-differential equation. *Math. Methods Appl. Sci.* **46** (2023), no. 12, 12946-12959. <https://doi.org/10.1002/mma.9224>
77. **N. Shavlakadze**, B. Pachulia, Dynamical contact problems for a viscoelastic half-space with an elastic inclusion, *Trans. A. Razmadze math. Inst.* **177** (2023), no. 3, 463-469.
78. \***N. Shavlakadze**, N. Odishelidze, F. Criado-Aldeanueva, The adhesive contact problem for a piecewise-homogeneous orthotropic plate with an elastic patch. *Math. Mech. Solids* **28** (2023), no. 8, 1798-1808. <https://doi.org/10.1177/10812865221138514>
79. **Sh. Tetunashvili**, T. Tetunashvili, A Rademacher series convergent to each real-valued function continuous over  $(0, 1)$  on certain dense subsets of  $(0, 1)$ , *Trans. A. Razmadze math. Inst.*, **177** (2023), no. 2, 327-329.
80. **T. Toronjadze**, Stochastic Volatility Model with Small Randomness. Construction of CULANbEstimators. In: *Materials of the conference: Application of random processes and mathematical statistics in financial economics and social sciences VIII*, Georgian-American University, November 2023, pp. 42-52.

### (iii) papers published online

1. \***A. Al-Rawashdeh, B. Mesablishvili**, On Amitsur cohomology of monads. *J. Algebra Appl.* (2023), 52 83., Doi: 10.1142/S0219498825500537
2. \***J. M. Casas, E. Khmaladze**, M. Ladra, Notes on Leibniz n-algebras, *Journal of Geometry and Physics* **195**, January 2024, 105035, <https://doi.org/10.1016/j.geomphys.2023.105035>
3. \***G. Chkadua**, E. Shargorodsky, asymptotic analysis of fundamental solutions of hypoelliptic operator, *Georgian Math. J.*, Published online October 28, 2023, <https://doi.org/10.1515/gmj-2023-2072>
4. **L. Ephremidze**, G. Mishuris, I. Spitkovsky, On exact spectral factorization of rational matrix functions with applications to paraunitary filter banks, <https://arxiv.org/abs/2312.03518>
5. \***D. Gabelaia, E. Kuznetsov**, R. C. Mihailescu, K. Razmadze, L. Uridia, Temporal logic of surjective bounded morphisms between finite linear processes, *Journal of Applied Non-Classical Logics*, Published online: 27 Oct 2023, 30 pp. <https://doi.org/10.1080/11663081.2023.2269432>
6. **T. Kadeishvili**, Ainfinity-algebra Structure in Cohomology and its Applications." *arXiv preprint arXiv:2307.10300* (2023), Submitted on 18 Jul 2023, 65pp. <https://doi.org/10.48550/arXiv.2307.10300>

7. \***A. Kharazishvili**, Quasi-invariant measures on topological groups and  $\omega$ -powers. *Georgian Math. J.*, Published online October 4, 2023, <https://doi.org/10.1515/gmj-2023-2073>
8. \***E. Khmaladze**, M. Ladra, q-crossed modules and q-capability of Lie algebras, *J. Algebra Appl.*, <https://doi.org/10.1142/S0219498825501233>
9. **A. Khvedelidze**, A. Torosyan, On the nonclassicality distance indicator of qudits. Preprint, 2023, <https://doi.org/10.48550/arXiv.2310.12173>; to appear in *J. Math. Sci.* (2023).
10. \***A. Meskhi**, Extrapolation in new weighted grand Morrey spaces beyond the Muckenhoupt classes, *Journal of Mathematical Analysis and Applications*, 2023, (*J. Math. Anal. Appl.* **529** (2024), no. 2, Paper No. 127181, 18 pp.), <https://doi.org/10.1016/j.jmaa.2023.127181>
11. G. Samsonadze, **D. Zangurashvili**, Descent in the dual category of ternary rings, 10 გვ.  
<https://arxiv.org/pdf/2308.04747.pdf>
12. **D. Zangurashvili**, The structure theorem for left modules over left hereditary left perfect right coherent rings, 16 გვ. <https://arxiv.org/pdf/2302.11202.pdf>

# 2022

## (i) Monographs

1. **A. Kharazishvili**, *Notes on Real Analysis and Measure Theory—fine Properties of Real Sets and Functions*. Springer Monographs in Mathematics, Springer, Cham, 2022. xi+253 pp.

## (ii) Papers

1. \*A. Al-Rawashdeh, **B. Mesablishvili**, Hilbert's theorem 90 in monoidal categories. *J. Algebra* 602 (2022), 1-36.  
<https://www.sciencedirect.com/science/article/abs/pii/S0021869322001004>
2. B. Anjaparidze, **M. Ashordia**, On the criterion of well-posedness of the Cauchy problem with weight for systems of linear ordinary differential equations with singularities. *Reports of QUALITDE* **1** (2022), 13-17.
3. **M. Ashordia**, N. Kharshiladze, On the well-posedness of the weighted Cauchy problem for systems of linear impulsive differential equations with singularities. *Mem. Differ. Equ. Math. Phys.* **85** (2022), 21-33.
4. \***M. Ashordia**, On the well-posedness of the Cauchy problem with weight for systems of linear generalized ordinary differential equations with singularities. *Georgian Math. J.* **29** (2022), no. 5, 641-659.
5. \***M. Bakuradze**, Cohomological realization of the Buchstaber formal group law, *Uspekhi Mat. Nauk* **77** (2022), no. 5(467), 189-190; DOI: <https://doi.org/10.4213/rm10073>
6. \*N. Bezhanishvili, V. Ciancia, **D. Gabelaia**, G. Grilletti, D. Latella, M. Massink, Geometric model checking of continuous space. *Log. Methods Comput. Sci.* **18** (2022), no. 4, Paper No. 7, 38 pp.
7. \*G. Bezhaniashvili, **D. Gabelaia**, **M. Jibladze**, A negative solution of Kuznetsov's problem for varieties of bi-Heyting algebras. *J. Math. Log.* **22** (2022), no. 3, Paper No. 2250013, 21 pp.  
<https://doi.org/10.1142/s0219061322500131>
8. T. Bibilashvili, **S. Kharibegashvili**, Darboux type problem for one nonlinear hyperbolic equation of the fourth order. *Rep. Enlarged Sess. Semin. I. Vekua Appl. Math.* **36** (2022), 11-14.
9. **G. Chkadua**, Asymptotic analysis and regularity results for a mixed type interaction problem of acoustic waves and electro-magneto-elastic structures. *Mem. Differ. Equ. Math. Phys.* **85** (2022), 53-74.
10. **O. Chkadua**, A. Toloraia, Boundary-transmission problems of the thermo-piezo-electricity theory without energy dissipation. *Trans. A. Razmadze Math. Inst.* **176** (2022), no. 1, 1-27.
11. **G. Chkadua**, Asymptotic analysis and regularity results for a mixed type interaction problem of acoustic waves and electro-magneto-elastic structures. *Mem. Differ. Equ. Math. Phys.* **85** (2022), 53-74.
12. **O. Chkadua**, A. Toloraia, Boundary-transmission problems of the thermo-piezo-electricity theory without energy dissipation. *Trans. A. Razmadze Math. Inst.* **176** (2022), no. 1, 1-27.
13. \***A. G. Elashvili**, **M. Jibladze**, V. G. Kac, Semisimple cyclic elements in semisimple Lie algebras. *Transform. Groups* **27** (2022), no. 2, 429-470.
14. **L. Ephremidze**, A. Gamkrelidze and I. Spitkovsky, On the spectral factorization of singular, noisy, and large matrices by Janashia-Lagvilava method, *Trans. A. Razmadze Math. Inst.* **176** (2022), no. 3, 361-366.

15. \***L. Ephremidze** and I. Spitkovsky, On the generalization of the Janashia-Lagvilava method for arbitrary fields. *Georgian Math. J.* **29** (2022), no. 3, 353-362; <https://doi.org/10.1515/gmj-2021-2140>
16. \***L. Ephremidze** and I. Spitkovsky, On multivariable matrix spectral factorization method. *J. Math. Anal. Appl.* **514** (2022), no. 1, Paper No. 126300, 25 pp.  
<https://doi.org/10.1016/j.jmaa.2022.126300>
17. **L. Ephremidze**, I. Spitkovsky and A. Saatashvili, On J-unitary matrix polynomials, *J. Math Sci.* **266** (2022), 196-209; <https://doi.org/10.1007/s10958-022-05878-w>
18. **E. Gordadze, A. Meskhi** and M. A. Ragusa, On some extrapolation in generalized grand Morrey spaces and applications to partial differential equations. *Trans. A. Razmadze Math. Inst.* **176** (2022), no. 3, 435-441
19. T. Gorgadze, **V. Kokilashvili** and D. Makharadze, The inequalities for trigonometric polynomials and entire functions of finite order in generalized weighted grand Lebesgue spaces, *Trans. A. Razmadze Math. Inst.* **176** (2022), no. 3, 443-446.
20. **G. Imerlishvili**, Trace inequalities for fractional integrals in central Morrey spaces. *Trans. A. Razmadze Math. Inst.* **176** (2022), no. 3, 447-450
21. \***H. Inassaridze**, (Co)homology of  $\$ \backslash \Gamma \$$ -groups and  $\$ \backslash \Gamma \$$ -homological algebra. *Eur. J. Math.* **8** (2022), suppl. 2, 720-763.
22. **M. Jibladze, T. Pirashvili**, Internal Hom of stable quadratic modules, *Trans. A. Razmadze Math. Inst.* **176** (2022), no. 3, 373-392.
23. **O. Jokhadze**, On the periodicity of the Riemann function of second order general type linear hyperbolic equations. *Reports of QUALITDE* **1** (2022), 94-96.
24. \***O. M. Jokhadze**, Mixed problem with a nonlinear boundary condition for a semilinear wave equation. (Russian) *Differ. Uravn.* **58** (2022), no. 5, 591-606; translation in *Differ. Equ.* **58** (2022), no. 5, 593-609.
25. \***O. Jokhadze**, A new class of exact solutions of von Karman's equation in the nonlinear theory of gas dynamics. *Georgian Math. J.* **29** (2022), no. 5, 715-724.
26. **G. Kapanadze, L. Gogolauri**, The problem of finding an equistrong contour for a viscoelastic rectangular domain. *Trans. A. Razmadze Math. Inst.* **176** (2022), no. 2, 273-279.
27. **G. Kapanadze, L. Gogolauri**, B. Gulua, The problem of finding an equal-strength contour in the case of a viscoelastic square plate. *Appl. Math. Inform. Mech (AMIM)* **27** (2022), no. 1 (in press).
28. **G. Kapanadze**, B. Gulua, On one problem of the plane theory of viscoelasticity for polygonal area with circular hole. *Appl. Math. Inform. Mech (AMIM)* **27** (2022), no. 2 (in press).
29. \***A. Kharazishvili**, On a geometric statement of Ramsey type. *Georgian Math. J.* **29** (2022), no. 2, 229-232; <https://doi.org/10.1515/gmj-2021-2125>
30. \***A. Kharazishvili**, On rainbow isosceles  $\$ n \$$ -simplexes. *Georgian Math. J.* **29** (2022), no. 4, 543-549; <https://doi.org/10.1515/gmj-2022-2147>
31. **A. Kharazishvili**, An abstract version of sup-measurability. *Trans. A. Razmadze Math. Inst.* **176** (2022), no. 1, 135-138.
32. **A. Kharazishvili**, Mazurkiewicz sets of universal measure zero. *Trans. A. Razmadze Math. Inst.* **176** (2022), no. 1, 139-141.
33. **A. Kharazishvili**, Sierpiński-Zygmund functions and  $\$ \backslash \omega \$$ -powers. *Trans. A. Razmadze Math. Inst.* **176** (2022), no. 2, 281-284.
34. \***S. S. Kharibegashvili**, B. G. Midodashvili, On the solvability of a special boundary value problem in a cylindrical domain for a class of nonlinear systems of partial differential equations. (Russian) *Differ. Uravn.* **58** (2022), no. 1, 82-92; translation in *Differ. Equ.* **58** (2022), no. 1, 81-91.

35. \***S. Kharibegashvili, B. Midodashvili**, On the solvability of one boundary value problem for one class of higher-order semilinear hyperbolic systems. *Lith. Math. J.* **62** (2022), 360-371..
36. \***S. S. Kharibegashvili, B. G. Midodashvili**, Boundary-value problem for a class of nonlinear systems of partial differential equations of higher orders. (Ukrainian) *Ukr. Mat. Zh.* **74** (2022), no. 6, 856-868; translation in *Ukr. Math. J.* **74** (2022), no. 6, 981-995.
37. **S. Kharibegashvili**, The boundary value problem for one class of nonlinear systems of partial differential equations. *Reports of QUALITDE* **1** (2022), 117-120.
38. **I. Kiguradze, N. Partsvania**, The Cauchy weighted problem for singular in time and phase variables higher order delay differential equations. *Mem. Differ. Equ. Math. Phys.* **87** (2022), 63-76.
39. **I. Kiguradze**, On the set of solutions of the Cauchy problem for higher order non-Lipshitzian ordinary differential equations. *Reports of QUALITDE* **1** (2022), 121-124.
40. **A. Kirtadze**, The method of almost surjective homomorphisms and the relative measurability of functions. *Trans. A. Razmadze Math. Inst.* **176** (2022), no. 1, 143-145.
41. **V. Kokilashvili**, Boundary value problems for analytic functions with boundary data from grand lebesgue spaces. *J. Math. Sci.* **268** (2022), no. 3, 355-367;  
<https://link.springer.com/article/10.1007/s10958-022-06200-4>
42. **V. Kokilashvili, A. Meskhi**, Compactness of fractional type integral operators on spaces of homogeneous type, *J. Math. Sci.* **268** (2022), No. 3, 368-375;  
<https://link.springer.com/article/10.1007/s10958-022-06202-2>
43. **V. Kokilashvili, A. Meskhi**, Operators of harmonic analysis in grand variable exponent Morrey spaces. *Trans. A. Razmadze Math. Inst.* **176** (2022), no. 1, 147-152.
44. **S. Kukudzhanov**, Dynamical thermostability of shells of revolution with an elastic filler and under the action of meridional forces, normal pressure and temperature. *Trans. A. Razmadze Math. Inst.* **176** (2022), no. 1, 45-55.
45. \***A. Kvinikhidze, B. Blankleider**, Covariant tetraquark equations in quantum field theory. *Physical Review D* **106**, 054024 (2022) (10 pp)
46. \***G. Lavrelashvili, J. L. Lehners**, Scalar lumps with two horizons. *Phys. Rev. D* **105** (2022) 2, 024051, 15 pp. DOI: [10.1103/PhysRevD.105.024051](https://doi.org/10.1103/PhysRevD.105.024051)
47. **V. Lomadze**, Linear ODE's with Laurent polynomial coefficients. *Funct. Differ. Equ.* **29** (2022), no. 1-2, 79-89; DOI: 10.26351/FDE/29/1-2/5
48. \***V. Lomadze**, Continuity of the solution set to a linear PDE with constant coefficients. *Internat. J. Control* **95** (2022), no. 11, 2987-2991; <https://doi.org/10.1080/00207179.2021.1948106>
49. \***M. Mania, R. Tikanadze**, Functional equations and martingales. *Aequationes Math.* **96** (2022), no. 1, 221-241; <https://doi.org/10.1007/s00010-021-00807-9>
50. \***N. Martins-Ferreira, A. Montoli, A. Patchkoria, M. Sobral**, The third cohomology group of a monoid and admissible abstract kernels. *Internat. J. Algebra Comput.* **32** (2022), no. 5, 1009-1041. <https://doi.org/10.1142/S0218196722500436>
51. **A. Meskhi**, Weighted extrapolation in grand Morrey spaces beyond the Muckenhoupt range. *Trans. A. Razmadze Math. Inst.* **176** (2022), no. 2, 285-289.
52. **E. Namgalauri, O. Purtukhia, Z. Zerakidze**, Stochastic integral representation of past-dependent non-smooth Brownian functionals. *Bull. TICMI* **26** (2022), no. 1, 3-18.
53. **N. Partsvania**, Optimal conditions for the solvability of the Cauchy weighted problem for higher order singular in time and phase variables ordinary differential equations. *Reports of QUALITDE* **1** (2022), 169-173.
54. \***M. Pirashvili, T. Pirashvili**, Symmetric cohomology of groups and Poincaré duality. *J. Algebra* **614** (2023), 177-198; <https://doi.org/10.1016/j.jalgebra.2022.09.015>.

55. **O. Purtukhia**, V. Jaoshvili, E. Namgalauri, Martingale representation of one non-smooth functional of Brownian motion. *Rep. Enlarged Sess. Semin. I. Vekua Inst. Appl. Math.* **36** (2022), 83-86.
56. \***S. Saneblidze** and R. Umble, Framed Matrices and A\$\\infy\$-Bialgebras\*. *Adv. Stud. Euro-Tbil. Math. J.* **15** (2022), no. 4, 41-140; DOI: 10.32513/asetmj/19322008230.
57. **N. Shavlakadze**, Discrete interaction of an elastic wedge-shaped plate with an elastic stringer. *Trans. A. Razmadze Math. Inst.* **176** (2022), no. 2, 301-307.
58. **N. Shavlakadze**, Adhesive interaction of a piecewise-homogeneous orthotropic plate with an elastic beam. *Izv. Nats. Akad. Nauk Armen. Mekh.* **75** (2022), no. 1-2, 184-194.
59. \***N. Shavlakadze, O. Jokhadze**, Solutions of a singular integro-differential equation related to the adhesive contact problems of elasticity theory. *Georgian Math. J.* **29** (2022), no. 2, 285-293; <https://doi.org/10.1515/gmj-2021-2126>
60. \*T. Supatashvili, **M. Eliashvili, G. Tsitsishvili**, Group structure of Wilson loops in 2D tight-binding models with 2-band and 4-band energy spectra. *Int. J. Mod. Phys. B* **36** (2022) 2250197, (16 pp). <http://dx.doi.org/10.1142/S0217979222501971>
61. **Sh. Tetunashvili** and T. Tetunashvili, On reconstruction of coefficients of Walsh series with gaps. *Trans. A. Razmadze Math. Inst.* **176** (2022), no. 1, 159-162.
62. **T. Toronjadze**, Construction of identifying and real M-estimators in general statistical model with filtration, *Materials of the conference: Application of random processes and mathematical statistics in financial economics and social sciences VII*, Georgian-American University, December 2022, pp. 42-51.
63. \***D. Zangurashvili**, Right-cancellable protomodular algebras. *Algebra Universalis* **83** (2022), no. 1, Paper No. 10, 20 pp. [doi.org/1007/s00012-021-00747-0](https://doi.org/1007/s00012-021-00747-0)
64. Z. Zerakidze, **O. Purtukhia**, Consistent estimator of parameter in the Hilbert space of measures. *Rep. Enlarged Sess. Semin. I. Vekua Inst. Appl. Math.* **36** (2022), 103-106.

### (iii) Papers published online

65. \*S. Adam-Day, N. Bezhaniashvili, **D. Gabelaia**, V. Marra, Polyhedral completeness of intermediate logics: the Nerve Criterion, *Journal of Symbolic Logic*, Published online by Cambridge University Press: 14 November 2022, 36 pp. <https://doi.org/10.1017/jsl.2022.76>
66. \*Sh. Akhalaia, **M. Ashordia** and M. Talakhadze, On the well-posedness of nonlocal boundary value problems for a class of systems of linear generalized differential equations with singularities. *Georgian Math. J.* **30** (2023), no. 1; Published online October 26, 2022, <https://doi.org/10.1515/gmj-2022-2184>.
67. \***M. Bakuradze** and A. Gamrelidze, On classifying map of the integral Krichever–Hoehn formal group law, *Georgian Math. J.* **30** (2023), no. 1; Published online October 28, 2022, <https://doi.org/10.1515/gmj-2022-2199>.
68. \*V. Bovdi, **B. Mesablishvili**, Descent Cohomology and Factorizations of Groups. *Algebras and Representation Theory* (2022). 20 pp. <https://doi.org/10.1007/s10468-022-10139-0>
69. \*B. Chikvinidze, **M. Mania** and R. Tevzadze, Functional equations for stochastic exponential, [arXiv:2112.14189](https://arxiv.org/abs/2112.14189) [math.PR], submitted to “Stochastic and Dynamics” 2022.
70. \***T. Datuashvili** and T. Sahan, Pentactions and action representability in the category of reduced groups with action. *Georgian Math. J.*, Published online November 30, 2022, <https://doi.org/10.1515/gmj-2022-2205>
71. \***T. Datuashvili**, T. Sahan, Actions and semi-direct products in categories of groups with action, *Hacet. J. Math. Stat.* (2023), <https://doi.org/10.15672/hujms.1028848>

72. \*L. Grafakos, **A. Meskhi**, On sharp Olsen's and trace inequalities for multilinear fractional integrals. *Potential Analysis*, 2022. <https://doi.org/10.1007/s11118-022-09991-y>
73. \*G. Imerlishvili, **A. Meskhi**, Weighted inequalities for one-sided multilinear fractional integrals. *Positivity* 27 (2023), no. 1, Paper No. 1; <https://doi.org/10.1007/s11117-022-00954-6>
74. A. Khvedelidze, A. Torosyan, Comparing classicality of qutrits from Hilbert-Schmidt, Bures and Bogoliubov-Kubo-Mori ensembles. to appear in *J. Math. Sci* (2022).  
<https://doi.org/10.48550/arXiv.2208.13908>
75. \*V. Kokilashvili, **A. Meskhi**, Extrapolation and the boundedness in grand variable exponent lebesgue spaces without assuming the Log-Hölder continuity condition, and applications. *J. Fourier Anal. Appl.* <https://doi.org/10.1007/s00041-022-09919-5>
76. \*V. Kokilashvili, **A. Meskhi**, Rubio de Francia's weighted extrapolation in mixed norm spaces and applications. *Math. Nachr.*, DOI: 10.1002/mana.202100244
77. \*V. Lomadze, Differential equations defined by (convergent) Laurent series, *J. Algebra Appl.*, <https://doi.org/10.1142/S0219498823500871>
78. \*M. Mania, R. Tevzadze, Martingale transformations of Brownian Motion with application to functional equations. *Stochastics: An International Journal of Probability and Stochastic Processes*, Published online 10 June 2022, [doi.org/10.1080/17442508.2022.2084341](https://doi.org/10.1080/17442508.2022.2084341)

**2021**

**(ii) Papers**

1. **V. Abgaryan, A. Khvedelidze, A. Torosyan**, Kenfack-Życzkowski indicator of nonclassicality for two non-equivalent representations of Wigner function of qutrit. *Phys. Lett. A* **412** (2021), Paper No. 127591, 8 pp.
2. \***M. Ashordia**, On the necessary and sufficient conditions for the convergence of the difference schemes for the general boundary value problem for the linear systems of ordinary differential equations. *Math. Bohem.* **146** (2021), no. 3, 333-362; doi: [10.21136/MB.2020.0052-18](https://doi.org/10.21136/MB.2020.0052-18).
3. \***M. Ashordia**, I. Gabisonia and M. Talakhadze, On the solvability of the modified Cauchy problem for linear systems of generalized ordinary differential equations with singularities. *Georgian Math. J.* **28** (2021), no. 1, 29-47; doi: <https://doi.org/10.1515/gmj-2014-0003>.
4. **M. Ashordia**, On the criterion of the convergence of difference schemes for linear general boundary problems for systems of ordinary differential equations. *Rep. Enlarged Sess. Semin. I. Vekua Appl. Math.* **35** (2021), 7-10.
5. **M. Ashordia**, On the criterion of the well-posedness for the general boundary value problems for the systems of ordinary linear differential equations. *Rep. Enlarged Sess. Semin. I. Vekua Appl. Math.* **35** (2021), 11-14.
6. **M. Bakuradze**, On mathematical work by Roin Nadiradze. *ASETMJ* Special Issue (7 - 2021), De Gruyter – Sciendo Publishers. <https://doi.org/10.2478/9788366675476>
7. **M. Bakuradze**, Polynomial generators of MSU[1/2] related to classifying maps of certain formal group laws, [arXiv:2107.01395](https://arxiv.org/abs/2107.01395) [math.AT]
8. \*G. Bezhanishvili, N. Bezhanishvili, L. Carai, **D. Gabelaia**, S. Ghilardi, **M. Jibladze**, Diego's theorem for nuclear implicative semilattices. *Indag. Math. (N.S.)* **32** (2021), no. 2, 498-535.
9. \*G. Bezhanishvili, J. Harding, **M. Jibladze**, Canonical extensions, free completely distributive lattices, and complete retracts. *Algebra Universalis* **82** (2021), no. 4, Paper No. 64, 6 pp. <https://doi.org/10.1007/s00012-021-00756-z>
10. B. Blankleider, J. L. Wray, **A.N. Kvinikhidze**, Dyson-Schwinger approach to pion-nucleon scattering using time-ordered perturbation theory. *American institute of physics (AIP) Advances* **11** (2021) 2
11. B. Blankleider, S. S. Kumar, **A. N. Kvinikhidze**, effect of nucleon dressing on the triton energy. *Few Body Syst.* **62** (2021) 87
12. \***T. Buchukuri, O. Chkadua**, D. Natroshvili, Mixed- and crack-type dynamical problems of electro-magneto-elasticity theory. *Georgian Math. J.* **28** (2021), no. 4, 533-553. <https://doi.org/10.1515/gmj-2020-2051>
13. **T. Buchukuri, O. Chkadua**, D. Natroshvili, Mixed boundary-transmission problems of the generalized thermo-electro-magneto-elasticity theory for piecewise homogeneous composed structures. *Trans. A. Razmadze Math. Inst.* **175** (2021), no. 2, 163-198. ISSN **2346-8092**
14. **T. Buchukuri, R. Duduchava**, Solvability and numerical approximation of the shell equation derived by the \$\Gamma\$-convergence. *Mem. Differ. Equ. Math. Phys.* **82** (2021), 39-55.
15. \*J.-M. Casas, R. Fernández-Casado, X. García-Martínez, **E. Khmaladze**, Actor of a crossed module of dialgebras via tetramultipliers. *Hacet. J. Math. Stat.* **50** (2021), no. 4, 1063-1078.
16. \***J. M. Casas, E. Khmaladze, N. Pacheco Rego**, On some properties preserved by the non-abelian tensor product of Hom-Lie algebras. *Linear Multilinear Algebra* **69** (2021), no. 4, 607-626.

17. **G. Chkadua**, Solvability of the mixed type interaction problem of acoustic waves and electro-magneto-elastic structures. *Mem. Differ. Equ. Math. Phys.* 84 (2021), 69-98. **ISSN 1512-0015**
18. \***G. Chkadua**, D. Natroshvili, Mathematical aspects of fluid-multiferroic solid interaction problems. *Math. Methods Appl. Sci.* **44** (2021), no. 12, 9727-9745. **ISSN: 1099-1476**
19. \***O. Chkadua**, S. Mikhailov, D. Natroshvili, Localized boundary-domain singular integral equations of the Robin type problem for self-adjoint second-order strongly elliptic PDE systems. *Georgian Math. J.* **28** (2021), no. 5, 695-715.
20. \*A. De Sole, **M. Jibladze**, V. G. Kac, D. Valeri, Integrability of classical affine W-algebras. *Transformation Groups* **26** (2021), no. 2, 479–500. <https://doi.org/10.1007/S00031-021-09645-0>
21. \*A. De Sole, **M. Jibladze**, V. G. Kac, D. Valeri, Integrable triples in semisimple Lie algebras. *Lett. Math. Phys.* **111** (2021), no. 5, Paper No. 117, 64 pp. <https://doi.org/10.1007/s11005-021-01456-4>
22. \*E. Detomi, **G. Donadze**, M. Morigi, P. Shumyatsky, On finite-by-nilpotent groups. *Glasg. Math. J.* **63** (2021), no. 1, 54-58.
23. \***R. Duduchava**, Laplace-Beltrami equation on a hypersurface with Lipschitz boundary. *Adv. Pure Appl. Math.* **12** (2021), Special issue, 36-53. DOI: 10.21494/ISTE.OP.2021.0697
24. \***R. Duduchava, T. Buchukuri**, Shell equations in terms of Günter's derivatives, derived by the  $\$ \backslash \text{Gamma} \$$ -convergence. *Math. Methods Appl. Sci.* **44** (2021), no. 12, 9710-9726. **DOI: 10.1002/mma.7226**
25. \***O. Dzagnidze**, Smoothness conditions for functions of two variables. *Georgian Math. J.* **28**(2021), No 6, doi: <https://doi.org/10.1515/gmj-2021-2093>.
26. \*D. E. Edmunds, **A. Meskhi**, A Multilinear Rellich Inequality, *Mathematical Inequalities and Applications* (MIA) **24** (2021), 265–274, DOI: doi:10.7153/mia-2021-24-19.
27. **L. Ephremidze** and A. Saatashvili, A simple derivation of the key equation in Janashia-Lagvilava method, *Trans. A. Razmadze Math. Inst.*, **175** (2021), 43-47.
28. \*D. E. Edmunds, **V. Kokilashvili and A. Meskhi**. Embeddings in grand variable exponent function spaces, *Results in Mathematics*, **76**: 137, <https://doi.org/10.1007/s00025-021-01450-1>.
29. **E. Gordadze and V. Kokilashvili**. On the boundedness of pseudodifferential operators defined by amplitudes in generalized weighted grand Lebesgue spaces, *Trans. A. Razmadze Math. Inst.* **175** (2021), No 3, 431-432.
30. V. Jaoshvili, E. Namgalauri, **O. Purtukhia**, Stochastic integral representation of non-smooth Wiener functionals. In: *Proceedings of the scientific conference “Actual problems of stochastic analysis”*, dedicated to the 80th anniversary of the birth of Academician Sh. K. Formanov, Tashkent, February 20-21, 2021, pp. 52-56.
31. \***M. Jibladze**, V. G. Kac, Normal forms of nilpotent elements in semisimple Lie algebras. *Indag. Math. (N.S.)* **32** (2021), no. 6, 1311-1331. <https://doi.org/10.1016/j.indag.2021.07.001>
32. **G. Jorjadze**, S. Theisen, Canonical maps and integrability in  $\$ T \overline{T} \$$  deformed 2d CFTs. *Integrability, quantization, and geometry. I*, 217-237, Proc. Sympos. Pure Math., 103.1, Amer. Math. Soc., Providence, RI, [2021], ©2021.
33. \***G. Jorjadze**, S. Theisen, On the  $\$ S\$$ -matrix of Liouville theory. *J. High Energy Phys.* **2021**, no. 2, Paper No. 111, 24 pp.
34. **G. Jorjadze**, S. Theisen, Generating function for the S-matrix of Liouville theory. *Proceedings of Science*, Regio2020 (2021) 013
35. \***D. Kapanadze**, The far-field behaviour of Green's function for a triangular lattice and radiation conditions. *Math. Methods Appl. Sci.* **44** (2021), no. 17, 12746-12759. DOI: 10.1002/mma.7575
36. **D. Kapanadze**, On the discrete problem of wave diffraction by semi-infinite rigid constraint. *Trans. A. Razmadze Math. Inst.* **175** (2021), issue 3, 443–449. **ISSN 2346-8092**

37. \***D. Kapanadze, E. Pesetskaya**, Diffraction problems for two-dimensional lattice waves in a quadrant. *Wave Motion* **100** (2021), Paper No. 102671, 15 pp.
38. **G. Kapanadze**, B. Gulua, On one problem of the plane theory of viscoelasticity for a doubly-connected domain bounded by polygons. *Semin. I. Vekua Inst. Appl. Math., Reports* **47** (2021), 36-41. ISSN 1512-0058
39. **G. Kapanadze**, B. Gulua, The punch problems of the plane theory of viscoelasticity for the half plane. *Trans. A. Razmadze Math. Inst.* **175** (2021), no. 3, 451-454
40. **A. Kharazishvili**, On oscillations of real-valued functions, *Trans. A. Razmadze Math. Inst.* **175** (2021), No 1, 63-67.
41. **A. Kharazishvili**, On the generalized non-measurability of some classical point sets, *Trans. A. Razmadze Math. Inst.*, **175**(2021), No 1, 151-153.
42. **A. Kharazishvili**, On non-measurable uniform subsets of the Euclidean plane, *Trans. A. Razmadze Math. Inst.*, **175**(2021), No 2, 285-286.
43. **A. Kharazishvili**, On  $T_2$ -negligible  $S_2$ -absolutely non-measurable sets in the Euclidean plane, *Bulletin of TICMI*, **25**(2021), No 1, 77-81.
44. \***A. Kharazishvili**, On the generalized non-measurability of Vitali sets and Bernstein sets, *Georgian Math. J.*, **28**(2021), No 4, 575-579.
45. **S. Kharibegashvili**, B. Midodashvili, On the solvability of one boundary value problem for a class of higher-order nonlinear partial differential equations. *Mediterr. J. Math.* **18** (2021), no. 4, Paper No. 131, 18 pp. doi: <https://doi.org/10.1007/s00009-021-01752-2>.
46. \***E. Khmaladze, R. Kurdiani, M. Ladra**, On the capability of Leibniz algebras. *Georgian Math. J.* **28** (2021), no. 2, 271-279.
47. **A. Khvedelidze**, V. Abgaryan, Kenfack–Życzkowski indicator of nonclassicality for two non-equivalent representations of Wigner function of qutrit. *Discrete and Continuous Models and Applied Computational Science*, **29** (2021), no. 4, 361-386.
48. \***A. Khvedelidze**, D. Mladenov, On families of Wigner functions for N-level quantum systems. *Symmetry* **13** (2021), 1013.
49. **I. Kiguradze**, On the unique solvability of two-point boundary value problems for third order linear differential equations with singularities. *Trans. A. Razmadze Math. Inst.* **175** (2021), no. 3, 375-390; ISSN 2346-8092.
50. **A. Kirtadze**, On uniform distribution for invariant extensions of the Lebesgue measure, *Trans. A. Razmadze Math. Inst.* **175** (2021), no. 3, 391-400.
51. **V. Kokilashvili**, Boundedness criteria for Calderón singular integral operator in some grand function spaces. *Bull. Georgian Natl. Acad. Sci.* **15** (2021), no. 2, 7-13.
52. \***V. Kokilashvili, A. Meskhi**, Maximal and singular integral operators in weighted grand variable exponent Lebesgue spaces, *Ann. Funct. Anal.* 12:48, <https://doi.org/10.1007/s43034-021-00135-8>.
53. \***V. Kokilashvili, A. Meskhi**, On the boundedness of integral operators in weighted grand Morrey spaces, *Proc. Steklov Inst. Math.* **12**(2021), 194–206,  
DOI: <https://doi.org/10.1134/S0081543821010119>
54. \***V. Kokilashvili, A. Meskhi**, Boundedness of integral operators in generalized weighted grand Lebesgue spaces with non-doubling measures, *Mediterranean J. Math.* **18:50**(2021) 12, 194–206,  
DOI: <https://doi.org/10.1007/s00009-020-01694-1>.
55. \***V. Kokilashvili, A. Meskhi**, Weighted Sobolev inequality in grand mixed norm Lebesgue spaces, *Positivity* **25** (2021), 273–288, DOI: 10.1007/s11117-020-00764-8.
56. \***V. Kokilashvili, A. Meskhi**, Weighted Sobolev inequality in grand mixed norm Lebesgue spaces, *Integral Transforms and Special Functions* **32** (2021), 9,

DOI:10.1080/10652469.2020.1833003.

57. \***G. Lavrelashvili**, J.-L. Lehners, M. Schneider, Scalar lumps with a horizon. *Phys. Rev. D* **104** (2021), no. 4, Paper No. 044007, 10 pp.
58. **G. Lavrelashvili**, J. L. Lehners, Scalar lumps with two horizons. arXiv:2109.04180 [gr-qc].
59. \***V. Lomadze**, Duality for multidimensional linear systems with homological dimension  $\leq 1$ . *SIAM J. Control Optim.* **59** (2021), no. 1, 417-433. [doi.org/10.1137/19M1299190](https://doi.org/10.1137/19M1299190)
60. \***V. Lomadze**, Continuity of the solution set to a linear PDE with constant coefficients. *International J. of Control* **94** (2021), 1948106; [doi.org/10.1080/00207179.2021.1948106](https://doi.org/10.1080/00207179.2021.1948106)
61. B. Mamporia, E. Namgalauri, **O. Purtukhia**, Stochastic integral representation of path-dependent Non-smooth Brownian Functionals. *Rep. Enlarged Sessions Semin. I. Vekua Inst. Appl. Math.* **35** (2021), 63-66.
62. B. Mamporia, E. Namgalauri, **O. Purtukhia**, On the Clark-Ocone type formula for integral type Wiener functional. *Global and Stochastic Analysis* **8** (2021), no. 3, 87-95.
63. \***M. Mania**, A probabilistic method of solving Lobachevsky's functional equation. *Aequationes Math.* **95** (2021), no. 2, 237-243.
64. \***M. Mania**, R. Tevzadze, On martingale transformations of multidimensional Brownian motion. *Statist. Probab. Lett.* **175** (2021), Paper No. 109119, 7 pp.
65. \***B. Mesablishvili**, Non-abelian Galois cohomology via descent cohomology. *J. Algebra Appl.* **20** (2021), no. 4, Paper No. 2150053, 13 pp.
66. E. Namgalauri, **O. Purtukhia**, Different approaches in the constructive martingale representation of Brownian functionals. In: *Proceedings of the International Scientific Conference "Mathematical modeling, optimization and information technologies"*, November 15 - 19, 2021, Chișinău–Kiev – Batumi, pp. 102-104.  
<http://new.incyb.kiev.ua/storage/editor/files/mmoti-2021-24-namgalauri.pdf>
67. **N. Partsvania**, Some optimal conditions for the unique solvability of the Dirichlet problem for second order singular linear differential equations with a deviating argument. *Trans. A. Razmadze Math. Inst.* **175** (2021), no. 3, 455-459; [ISSN 2346-8092](https://doi.org/10.1017/S0004972721000137).
68. \***O. Purtukhia**, Z. Zerakidze, The consistent criteria for hypotheses testing. *Georgian Math. J.* **28** (2021), no. 5, 787-791.
69. **O. Purtukhia**, Z. Zerakidze, The consistent estimates of Charlier's statistical structures. *Trans. A. Razmadze Math. Inst.* **175** (2021), no. 3, 411-415.
70. **O. Purtukhia**, Z. Zerakidze, The Consistent Estimators of Charlier's Statistical Structures in Hilbert space of measures. *Bull. TICMI* **25** (2021), no. 2, 85-91.
71. \*G. Samsonadze, **D. Zangurashvili**, On Graev's theorem for free products of Hausdorff topological groups. *Bull. Aust. Math. Soc.* **104** (2021), no. 3, 475-483.  
doi:[10.1017/S0004972721000137](https://doi.org/10.1017/S0004972721000137)
72. **L. Shapakidze**, On the complex regimes of the Taylor-Dean flow between two rotating porous cylinders. *Trans. A. Razmadze Math. Inst.* **175** (2021), no. 3, 461-466
73. **N. Shavlakadze**, Ts. Jamaspishvili, The contact problem for piecewise homogeneous viscoelastic plate reinforced with a finite rigid patch. *Trans. A. Razmadze Math. Inst* **175** (2021), no. 3, 467-473.
74. \***N. Shavlakadze**, N. Odishelidze, F. Criado-Aldeanueva, The investigation of singular integro-differential equations relating to adhesive contact problems of the theory of viscoelasticity. *Z. Angew. Math. Phys.* **72** (2021), no. 2, Paper No. 42, 15 pp.
75. T. Supatashvili, **M. Eliashvili**, **G. Tsitsishvili**, Group Structure of Wilson Loops in 2D Models with 2- and 4-band Energy Spectra. arXiv: 2108.06510v1

76. **T. Toronjadze**, On set of convergence of Semimartingales. *Materials of the conference: Application of random processes and mathematical statistics in financial economics and social sciences VI*, Georgian-American University, December 2021, pp. 32-38.
77. \***D. Zangurashvili**, Admissible Galois structures on the categories dual to some varieties of universal algebras. *Georgian Math. J.* **28** (2021), no. 4, 651-664.

### (iii) Papers published online

78. \***G. Donadze**, X.-Garcia-Martinez, Some generalizations of Schur's and Baer's theorem and their connection with homological algebra, *Math. Nach.*; Doi.org/10.1002/mana201900495
79. **T. Kadeishvili**,  $A_\infty$  algebra sstructure in cohomology and its applications, Summer School on Algebra, Topology and Analysis: C\* and  $A(\infty)$  algebras - Gonio, Batumi, Georgia, August 30-September 3, 2021”, Organizers TSU, Universität Göttingen, Volkswagen Foundation. 66 pages. (accepted), <http://mathphd.tsu.ge/pages/summerschool2021.html>, თსუ გამოძებლობა.
80. \***M. Mania** and R. Tikanadze, Functional Equations and Martingales, *Aequationes Mathematicae*, Published online 22 May 2021, 21 pages, doi:10.1007/s00010-021-00807-9.
81. \***N. Shavlakadze**, Ts. Jamaspishvili. The singular integro-differential equations and its applications in the contact problems of elasticity theory. *MMA (Math. Methods in Appl. Sciences)*, First published: 30 May 2021, <https://doi.org/10.1002/mma.7493>
82. \***N. Shavlakadze, O. Jokhadze**, The solution of one type singular integro-differential equation related to the adhesive contact problems of elasticity theory. *Georgian. Math. J.* 2021, <https://doi.org/10.1515/gmj-2021-2126>
83. \***D. Zangurashvili**, Right-cancellable protomodular algebras, *Algebra Universalis* (in press) <https://doi.org/10.1007/s00012-021-00747-0>

**(i) Monographs**

1. **M. Ashordia**, The general boundary value problems for linear systems of generalized ordinary differential equations, linear impulsive differential and ordinary differential systems. Numerical solvability. *Mem. Differ. Equ. Math. Phys.* **81** (2020), 1-184.
2. **T. Buchukuri, R. Duduchava**, Thin shells with lipschitz boundary. *Mem. Differ. Equ. Math. Phys.* **80** (2020), 1-170.
3. **ა. ხარაზიშვილი**, კომბინატორული გეომეტრიის ელემენტები, ნაწილი 2 (ინგლისურ ენაზე), საქართველოს მეცნიერებათა ეროვნული აკადემიის გამომცემლობა, თბილისი, 2020, 280 გვ.
4. ნუცუბიძე, ო. ძაგნიძე, შ. კირთაძე, მათემატიკური ცნობარი (მეორე გაფართოებული გამოცემა), აკავი წერეთლის სახელმწიფო უნივერსიტეტის გამომცემლობა, ქუთაისი, 2020, 676 გვ.

**(ii) Papers**

1. **G. Arabidze**, Transfer of a generalised groupoid action along a Morita equivalence. *Theory Appl. Categ.* **35** (2020), Paper No. 41, 1549-1563.  
<http://www.tac.mta.ca/tac/volumes/35/41/35-41.pdf>
2. \***M. Ashordia** and N. Kharshiladze, On the solvability of the modified Cauchy problem for linear systems of impulsive differential equations with singularities. *Miskolc Math. Notes* **21** (2020), no. 1, 69-79; DOI: 10.18514/MMN.2020.3248.
3. \***M. Bakuradze**, On vanishing of all fourfold products of the Ray classes in symplectic cobordism. *Proc. Amer. Math. Soc.* **148** (9) (2020), 4107-4115;  
DOI: <https://doi.org/10.1090/proc/15058>
4. \***M. Bakuradze**, All extensions of  $\$C_2\$$  by  $\$C_{\{2^n\}} \times C_{\{2^n\}}\$$  are good for the Morava  $\$K\$$ -theory. *Hiroshima Math. J.* **50** (2020), no. 1, 1-15,  
<https://projecteuclid.org/euclid.hmj/1583550012>
5. \***G. Berikelashvili**, A. Papukashvili and J. Peradze, Iterative solution of a nonlinear static beam equation. *Ukrain. Mat. Zh.* **72** (2020), no. 8, 1024-1033;  
DOI: 10.37863/umzh.v72i8.833.
6. \***L. Castro, R. Duduchava**, F.-O. Speck, Mixed impedance boundary value problems for the Laplace-Beltrami equation. *J. Integral Equations Appl.* **32** (2020), no. 3, 275-292.  
<https://projecteuclid.org/euclid.jiea/1600308142>
7. **G. Chkadua**, Interaction problems of acoustic waves and electro-magneto-elastic structures. *Mem. Differ. Equ. Math. Phys.* **79** (2020), 27-56.
8. \***T. Datuashvili**, O. Mucuk, T. Şahan, Groups up to congruence relation and from categorical groups to c-crossed modules. *J. Homotopy Relat. Struct.* **15** (2020), no. 3-4, 625-640;  
<https://doi.org/10.1007/s40062-020-00270-4>
9. S. Davadze, M. Giorgadze, **O. Purtukhia**, Stochastic integral representation of some Brownian functional with explicit expression of integrand. *Rep. Enlarged Sess. Semin. I. Vekua Appl. Math.* **34** (2020), 15-18; ISSN 1512-0066.
10. \***R. Duduchava** and M. Tsavaa, Mixed boundary value problems for the Helmholtz equation

- in a model 2D angular domain. *Georgian Math. J.* **27** (2020), no. 2, 211-231; <https://doi.org/10.1515/gmj-2019-2031>
11. D. E. Edmunds and **A. Meskhi**, Weighted multilinear Hardy and Rellich inequalities. *Trans. A. Razmadze Math. Inst.* **174** (2020), no. 3, 395-398.
  12. \***L. Ephremidze**, E. Shargorodsky, and I. Spitkovsky, Quantitative results on continuity of the spectral factorization mapping. *J. Lond. Math. Soc. (2)* **101** (2020), no. 1, 60-81; <https://doi.org/10.1112/jlms.12258>
  13. \***L. Ephremidze** and I. Spitkovsky, On explicit Wiener-Hopf factorization of \$2 \times 2\$ matrices in a vicinity of a given matrix. *Proceedings of the Royal Society, A* **476** (2020), no. 2238, 20200027, 12 pp. <https://doi.org/10.1098/rspa.2020.0027>.
  14. **R. Gachechiladze**, Dynamical contact problems with regard to friction of couple-stress viscoelasticity for inhomogeneous anisotropic bodies. *Mem. Differ. Equ. Math. Phys.* **79** (2020), 69-68.
  15. G. Imerlishvili, **A. Meskhi** and Q. Xue, Multilinear Fefferman-Stein inequality and its generalizations. *Trans. A. Razmadze Math. Inst.* **174** (2020), no. 1, 83-92.
  16. G. Imerlishvili and **A. Meskhi**, Weighted norm estimates for one-sided multilinear integral operators. *Trans. A. Razmadze Math. Inst.* **174** (2020), no. 3, 399-403.
  17. **N. Inassaridze**, M. Khazaradze, **È. Khmaladze**, **B. Mesablishvili**, On one-way ring homomorphisms. *Algebra, Itogi Nauki i Tekhniki. Ser. Sovrem. Mat. Pril. Temat. Obz.* **177** (2020), VINITI, Moscow, 80-86; <https://doi.org/10.36535/0233-6723-2020-177-80-86>
  18. Ts. Jamaspishvili, **N. Shavlakadze**, The boundary value problems for piecewise-homogeneous viscoelastic plate. *Rep. Enlarged Sess. Semin. I. Vekua Appl. Math.* **34** (2020), 34-37; ISSN 1512-0066.
  19. V. Jaoshvili, **O. Purtukhia**, Z. Zerakidze, Stochastic derivative of Poisson polynomial functionals and its application, *Bull. Georgian Natl. Acad. Sci.* **14** (2020), no. 1, 29-38.
  20. \***M. Jibladze**, T. Pirashvili, Lie theory for symmetric Leibniz algebras. *J. Homotopy Relat. Struct.* **15** (2020), no. 1, 167-183; <https://doi.org/10.1007/s40062-019-00248-x>
  21. **Т. Кадеишвили**, Структура  $A(\infty)$ -алгебры в когомологии и когомологии свободного пространства петель. *Итоги науки и техн. Сер. Соврем. мат. и ее прил. Темат. обз.*, 177, ВИНИТИ РАН, М., 2020, Москва, РАН, 87-96.
  22. N. Kalandarishvili, **T. Toronjadze**, T. Uzunashvili, Modeling of medical service protocols adoption priorities in healthcare system. *Materials of the conference: Application of random processes and mathematical statistics in financial economics and social sciences V*, Georgian-American University, October 2020, pp. 29-35.
  23. **G. Kapanadze**, **L. Gogolauri**, The punch problem of the plane theory of viscoelasticity with a friction. *Trans. A. Razmadze Math. Inst.* **174** (2020), no. 3, 405--411.
  24. A. Khachidze, **A. Kirtadze**, The strong uniqueness property of invariant measures in infinite dimensional topological vector spaces. *Trans. A. Razmadze Math. Inst.* **174** (2020), no. 1, 117-119.
  25. \***A. Kharazishvili**, On finite sums of periodic functions. *Georgian Math. J.* **27** (2020), no. 2, 265-269. DOI: <https://doi.org/10.1515/gmj-2019-2076>
  26. \***A. Kharazishvili**, Some remarks on Sierpiński-Zygmund functions in the strong sense. *Georgian Math. J.* **27** (2020), no. 4, 569--575. DOI: <https://doi.org/10.1515/gmj-2020-2062>.
  27. **A. Kharazishvili**, A measure zero set in the plane with absolutely nonmeasurable linear sections. *Trans. A. Razmadze Math. Inst.* **174** (2020), no. 3, 359-362.
  28. **A. Kharazishvili**, On  $(n+1)$ -colorings of the  $n$ -space and associated isosceles simplexes, *J. Geometry* **111**(2020), Issue 2. <https://doi.org/10.1007/s00022-020-0527-6>

29. **S. S. Kharibegashvili, O. M. Jokhadze**, Solvability of a mixed problem with nonlinear boundary condition for a one-dimensional semilinear wave equation. (in Russian) *Mat. Zametki* **108** (2020), no. 1, 137-152; DOI: <https://doi.org/10.4213/mzm12418>.
30. \*T. G. Khunjua et.al., Electrical neutrality and  $\beta$ -equilibrium conditions in dense quark matter: generation of charged pion condensation by chiral imbalance. *European Physical Journal C* **80** (2020) no.10, 995, ISSN: 1434-6044 (Print) 1434-6052 (Online)
31. \*T. G. Khunjua et.al. The dual properties of chiral and isospin asymmetric dense quark matter formed of two-color quarks. *JHEP* (2020) 2020: 6, ISSN 1029-8479
32. T. G. Khunjua et.al.. Dense Baryonic Matter and Applications of QCD Phase Diagram Dualities. *Particles* **3** (2020), no. 1, 62-79, <https://doi.org/10.3390/particles3010006>
33. **A. Khvedelidze** et.al., on measures of classicality/quantumness in quasiprobability representations of finite-dimensional quantum systems. *Phys. Part. Nuclei* **51** (2020), 443–447; <https://doi.org/10.1134/S1063779620040024>
34. **A. Khvedelidze** et.al., The global indicator of classicality of an arbitrary \$N\$-level quantum system. translated from *Zap. Nauchn. Sem. S.-Peterburg. Otdel. Mat. Inst. Steklov. (POMI)* **485** (2019), *Teoriya Predstavlenii, Dinamicheskie Sistemy, Kombinatornye Metody. XXIX*, 5-23; *J. Math. Sci. (N.Y.)* **251** (2020), no. 3, 301--314; <https://doi.org/10.1007/s10958-020-05092-6>
35. **I. Kiguradze**, On one Neumann type problem for second order linear differential equations. *Trans. A. Razmadze Math. Inst.* **174** (2020), no. 3, 413-417.
36. **A. Kirtadze** and T. Kasrashvili, On some extensions of volume type functionals on the space  $\mathbf{R}^n$ , which are invariant (quasi-invariant) with respect to various groups of transformations of  $\mathbf{R}^n$ , 14th International Conference on Geometry and Applications. *J. Geom.* **111**, 20 (2020). <https://doi.org/10.1007/s00022-020-0527-6>
37. \***V. Kokilashvili**, Weighted grand mixed-norm Lebesgue spaces and boundedness criteria for integral operators. *Georgian Math. J.* **27** (2020), no. 4, 577--583.  
[https://doi.org/10.1515/gmj\\_2020-2071](https://doi.org/10.1515/gmj_2020-2071)
38. **V. Kokilashvili**, On the boundedness in generalized weighted grand Lebesgue spaces of some integral operators associated to the Schrödinger operator. *Trans. A. Razmadze Math. Inst.* **174** (2020), no. 3, 419-421.
39. **V. Kokilashvili**, On the boundedness of multiple Cauchy singular and fractional integrals defined on the product of rectifiable curves. *Trans. A. Razmadze Math. Inst.* **174** (2020), no. 2, 251-255.
40. **V. Kokilashvili** and D. Makharadze, On extension of some Calderón-Zygmund inequality, *Bull. Georgian Natl. Acad. Sci.* **14** (2020), no. 3, 14-16.
41. \***V. Kokilashvili, M. Mastylo**, and **A. Meskhi**, Calderón-Zygmund singular operators in extrapolation spaces. *J. Funct. Anal.* **279** (2020), no. 10, 108735, 21 pp.  
<https://doi.org/10.1016/j.jfa.2020.108735>
42. \***V. Kokilashvili, M. Mastylo**, and **A. Meskhi**, On the boundedness of multilinear fractional integral operators. *J. Geom. Anal.* **30** (2020), no. 1, 667-679. <https://doi.org/10.1007/s12220-019-00159-6>.
43. \***V. Kokilashvili** and **A. Meskhi**, Trace inequalities for fractional integrals in mixed norm grand Lebesgue spaces. *Fractional Calculus and Applied Analysis* **23** (2020), no 5, 1452–1471. <https://doi.org/10.1515/fca-2020-0072>.
44. \***V. Kokilashvili** and **A. Meskhi**, Extrapolation in weighted classical and grand Lorentz spaces. Application to the boundedness of integral operators. *Banach J. Math. Anal.* **14** (2020), no. 3, 1111-1142. <https://doi.org/10.1007/s43037-020-00054-1>.

45. **V. Kokilashvili** and Ts. Tsanava, Note on the multiple fractional integrals defined on the product of nonhomogeneous measure spaces. *Trans. A. Razmadze Math. Inst.* **174** (2020), no. 2, 257-259.
46. **S. Kukudzanov**, On the influence of boundary conditions of rigid fixing on eigen-oscillations and thermostability of shells of revolution, close by their form to cylindrical ones, with an elastic filler, under the action of pressure and temperature. *Trans. A. Razmadze Math. Inst.* **174** (2020), no. 3, 369-375.
47. \***V. Lomadze**, Continuous dependence of linear differential systems on polynomial modules. *Math. Control Signals Systems* **32** (2020), no. 3, 385-409. doi.org/10.1007/s00498-020-00263-x
48. \***V. Lomadze**, Non-catastrophicity in multidimensional convolutional coding. *Discrete Math.* **343** (2020), no. 5, 111789, 9 pp. doi.org/10.1016/j.disc.2019.111789
49. B. Mamporia, **O. Purtukhia**, On the Clark-Ocone Type Formula for Integral Type Wiener Functional, *Abstracts of communications of the Conference “Modern stochastic models and problems of actuarial mathematics”*. Karshi, Uzbekistan, pp. 42-44 (2020).
50. B. Mamporia, **O. Purtukhia**, Banach space valued functionals of the Wiener process. *Trans. A. Razmadze Math. Inst.* **174** (2020), no. 2, 207-216.
51. **M. Mania**, R. Tevzadze, On martingale transformations of the linear Brownian motion. *Rep. Enlarged Sess. Semin. I. Vekua Appl. Math.* **34** (2020), 58-61.
52. **M. Mania**, R. Tevzadze, Martingale characterization of quadratic functional equations, *Materials of the conference: Application of random processes and mathematical statistics in financial economics and social sciences V*, Georgian-American University, October 2020.
53. \***M. Mania**, R. Tevzadze, Change of variable formulas for non-anticipative functionals. *Infin. Dimens. Anal. Quantum Probab. Relat. Top.* **23** (2020), no. 1, 2050006, 21 pp. <https://doi.org/10.1142/S021902572050006X>
54. \*N. Martins-Ferreira, A. Montoli, **A. Patchkoria**, M. Sobral, On the classification of Schreier extensions of monoids with non-abelian kernel. *Forum Math.* **32** (2020), no. 3, 607-623, <https://doi.org/10.1515/forum-2019-0164>.
55. **N. Partsvania**, Two-point boundary value problems for singular two-dimensional linear differential systems. *Trans. A. Razmadze Math. Inst.* **174** (2020), no. 3, 423-427.
56. **O. Purtukhia**, Z. Zerakidze, Objective and Subjective Consistent Criteria for Hypotheses Testing. In: Jaiani G., Natroshvili D. (eds.) *Applications of Mathematics and Informatics in Natural Sciences and Engineering*. AMINSE 2019. *Springer Proceedings in Mathematics & Statistics*, vol 334. Springer, Cham. [https://doi.org/10.1007/978-3-030-56356-1\\_14](https://doi.org/10.1007/978-3-030-56356-1_14)
57. \***N. Shavlakadze**, **O. Jokhadze**, **S. Kharibegashvili**, The contact problem for elastic plate, on the border which is adhered nonlinearly deformable stringer of finite length. (in Russian) *Prikl. Mat. i Mech.* **84** (2020), no. 5, (2020), 640-649; translation in *J. Appl. Math. Mech.* **84** (2020), no. 5, 10pp.
58. \***N. Shavlakadze**, N. Odishelidze, F. Criado-Aldeanueva, Exact solutions of some singular integro-differential equations related to adhesive contact problems of elasticity theory. *Z. Angew. Math. Phys.* **71** (2020), no. 4, Paper No. 115, 9 pp. <https://doi.org/10.1007/s00033-020-01350-4>
59. **Sh. Tetunashvili**, On the existence of universal series with special properties. *Trans. A. Razmadze Math. Inst.* **174** (2020), no. 3, 435-436.
60. **Sh. Tetunashvili**, T. Tetunashvili, On sets of uniqueness of some function series. *Trans. A. Razmadze Math. Inst.* **174** (2020), no. 3, 437-439.
61. **L. Uridia**, Completeness by Modal Definitions. Application to the Epistemic Logic With

- Hypotheses, *Inteligencia Artificial* **23**, No. 65 (2020), 18pp., <https://doi.org/10.4114/intartif.vol23iss65pp1-18>
62. **L. Uridia, D. Walther**, Common knowledge in an epistemic logic with hypotheses. In: *GCAI 2020. 6th Global Conference on Artificial Intelligence* (GCAI 2020), *EPiC Series in Computing* **72** (2020), 83–91; [https://doi.org/10.29007/43wj\\_9pp](https://doi.org/10.29007/43wj_9pp)
63. \***D. Zangurashvili**, Associativity-like conditions on protomodular algebras. *Algebra Universalis* **81** (2020), no. 1, Paper No. 1, 12 pp. <https://doi.org/10.1007/s00012-019-0630-4>

### (iii) Papers published online

64. \*G. Bezhanishvili, N. Bezhanishvili, L. Carai, **D. Gabelaia**, S. Ghilardi, **M. Jibladze**, Diego's theorem for nuclear implicative semilattices. *Indagationes Mathematicae*, Available online 24 December 2020, 38pp., <https://doi.org/10.1016/j.indag.2020.12.005>
65. \***T. Buchukuri, O. Chkadua**, D. Natroshvili, Mixed and crack type dynamical problems of electro-magneto-elasticity theory, *Georgian Math. J.*, Published online: 11 Feb 2020; DOI: <https://doi.org/10.1515/gmj-2020-2051>, 20pp.
66. \***O. Chkadua**, S. Mikhailov, D. Natroshvili, Localized boundary domain singular integral equations of robin type problem for self-adjoint second order strongly elliptic PDE systems, *Georgian Math. J.*, Published online: 12 Nov 2020; DOI: <https://doi.org/10.1515/gmj-2020-2082>.
67. \***G. Chkadua**, D. Natroshvili, Mathematical aspects of fluid-multiferroic solid interaction problems. *Mathematical Methods in the Applied Sciences*, First published: 14 December, 2020; <https://doi.org/10.1002/mma.7108>.
68. \***G. Donadze**, E. Detomi, M. Morigi, P. Shumyatsky, On finite-by-nilpotent groups. *Glasgow Math. J.*, DOI: 10.1017/s0017089519000508, 7pp.
69. \***R. Duduchava**, Mixed type boundary value problems for Laplace-Beltrami equation on a surface with the Lipschitz boundary. *Georgian Math. J.*, Published online: 11 Aug 2020; DOI: <https://doi.org/10.1515/gmj2020-2074>, 20pp.
70. \***A. Elashvili, M. Jibladze**, V. Kac, semisimple cyclic elements in semisimple Lie algebras. *Transformation Groups* (04 May 2020), 43pp., <https://doi.org/10.1007/s00031-020-09568-2>
71. \*G. Imerlishvili and **A. Meskhi**, A note on the trace inequality for Riesz potentials, *Georgian Math. J.*, Published online: 07 Nov 2020; DOI: 10.1515/gmj-2020-2077.
72. **G. Jorjadze**, S. Theisen, Canonical maps and integrability of  $T\bar{T}$  deformed 2d CFTs 1. e-Print 2001.03563 [hep-th].
73. **G. Jorjadze**, S. Theisen, On the S-matrix of Liouville theory. e-Print 2011.06876 [hep-th].
74. \***D. Kapanadze, E. Pesetskaya**, Diffraction problems for two-dimensional lattice waves in a quadrant. *Wave Motion*, Published online: 20 October 2020; will be published in vol. **100** (2021), 102671. <https://doi.org/10.1016/j.wavemoti.2020.102671>;
75. \***E. Khmaladze, R. Kurdiani**, M. Ladra, On the capability of Leibniz algebras, *Georgian Math. J.*, Published online: 16 July, 2020, 10pp., [doi.org/10.1515/gmj-2020-2067](https://doi.org/10.1515/gmj-2020-2067)
76. T. G. Khunjua, K. G. Klimenko, R.N. Zhokhov, Dense baryonic matter with chiral imbalance and charged pion condensation. *Acta Phys. Pol. B Proc. Suppl.* Published online: June 1, 2020 DOI:10.5506/APhysPolBSupp.14.67; will be published in vol. 14, 67 (2021).
77. \***V. Kokilashvili** and **A. Meskhi**, Singular integral operators in some variable exponent Lebesgue spaces. *Georgian Math. J.*, Published online: 16 Jul 2020; [https://doi.org/10.1515/gmj\\_2020-2065](https://doi.org/10.1515/gmj_2020-2065).

78. \***V. Kokilashvili** and **A. Meskhi**, On integral operators in weighted grand Lebesgue spaces of Banach-valued functions, *Mathematical Methods in the Applied Sciences*, First published: 30 July 2020, <https://doi.org/10.1002/mma.6779>.
79. \***V. Kokilashvili** and **A. Meskhi**, Weighted Sobolev inequality in grand mixed norm Lebesgue spaces, *Positivity*, Published online: 13 May 2020; <https://doi.org/10.1007/s11117-020-00764-8>
80. \***M. Mania**, A probabilistic method of solving Lobachevsky's functional equation, *Aequationes Mathematicae*, DOI 10.1007/s00010-020-00718-1, Published in March, 2020
81. \***B.Mesablishvili**, Non-abelian Galois cohomology via descent cohomology, *J. Algebra App.*, <https://doi.org/10.1142/S0219498821500535> (2020)
82. \***D. Zangurashvili**, Admissible Galois Structures on the categories dual to some varieties of universal algebras. *Georgian Math. J.*, Published online: 04 Aug 2020, 14pp., <https://doi.org/10.1515/gmj-2020-2073>.

**(i) Monograph**

1. **M. Ashordia**, The Initial Problem for Linear Systems of Generalized Ordinary Differential Equations, Linear Impulsive and Ordinary Differential Systems. Numerical Solvability. *Mem. Differential Equations Math. Phys.* **78** (2019), 1-162.

**(i) Papers**

1. **G. Arabidze**, Categories with Partial Covers. *Bull. Georg. Natl. Acad. Sci.* **13** (2019), no. 3, 18-23.
2. **M. Ashordia**, M. Kutsia, M. Talakhadze, On the well-posedness of the Cauchy problem for systems of linear generalized ordinary differential equations. *Mem. Differ. Equ. Math. Phys.* **77** (2019), 105-113.
3. \***M. Bakuradze**, V. Vershinin, On formal group laws over the quotients of Lazard's ring. *Georgian Math. J.* **26** (2019), no. 2, 159-164.
4. \***M. Bakuradze**, On Addition Theorems Related to Elliptic Integrals. (Russian) *Tr. Mat. Inst. Steklova* **305** (2019), *Algebraicheskaya Topologiya Kombinatorika i Matematicheskaya Fizika*, 29-39.
5. \***G. Berikelashvili** and M. Mirianashvili, On the convergence of difference schemes for the generalized BBM-Burgers equation. *Georgian Math. J.* **26** (2019), no. 3, 341-349.
6. \***G. Bezhaniashvili**, **D. Gabelaia**, J. Harding, **M. Jibladze**, Compact Hausdorff spaces with relations and Gleason spaces. *Appl. Categ. Structures* **27** (2019), no. 6, 663-686.
7. \***J. M. Casas**, **T. Datuashvili**, M. Ladra, Action theory of alternative algebras. *Georgian Math. J.* **26** (2019), no. 2, 177-197.
8. J. M. Casas, **N. Inassaridze**, M. Ladra, S. Ladra, Handwritten character recognition using some (anti)-diagonal structural features. *Bull. Georgian Natl. Acad. Sci. (N.S.)* **13** (2019), no. 1, 22-30.
9. \***J. M. Casas**, **E. Khmaladze**, N. Pacheco-Rego, On some properties preserved by the non-abelian tensor product of Hom-Lie algebras. *Linear and Multilinear Algebra*, doi.org/10.1080/03081087.2019.1612833.
10. \***G. Donadze**, M. Ladra, P. Paez-Guilan, Shur's theorem and its relation to the closure properties of the non-abelian tensor product. *Proceedings of the Royal Society of Edinburgh, Section A*, DOI: 10.1017/prm.2019.150.
11. **O. Dzagnidze**, A brief note on quaternion analysis. *Trans. A. Razmadze Math. Inst.* **173** (2019), no. 2, 91-93.
12. **O. Dzagnidze**, I. Tsivtsivadze, On the double limit associated with Riemann's summation method. *Trans. A. Razmadze Math. Inst.* **173** (2019), no. 1, 33-35.
13. \***R. Duduchava**, Mellin convolution equations. *Proceedings in Mathematics & Statistics*, OTHA 2018, Rostov-on-Don, Russia, 22 pp.
14. \***D. E. Edmunds**, **V. Kokilashvili**, **A. Meskhi**, Sobolev-type inequalities for potentials in grand variable exponent Lebesgue spaces. *Math. Nachr.* **292** (2019), no. 10, 2174-2188.
15. \***D. E. Edmunds**, **A. Meskhi**, Two-weighted Hardy operators in  $L^{\{p(\cdot)\}}$  spaces and applications. *Studia Math.* **249** (2019), no. 2, 143-162.
16. **A. Elashvili**, **M. Jibladze**, V. Kac, On Dynkin Gradings in Simple Lie Algebras, Chapter in the book *Representations and Nilpotent Orbits of Lie Algebraic Systems*, Progress in Mathematics,

Book, Springer, 2019, 111-131.

17. **A. Elashvili, M. Jibladze**, V. Kac, Semisimplicity sets for cyclic elements in simple Lie algebras. *Trans. A. Razmadze Math. Inst.* **173** (2019), no. 2, 95-100.
18. **L. Ephremidze**, E. Shargorodsky, I. Spitkovsky, Quantitative results on continuity of the spectral factorization mapping, *J. Lond. Math. Soc.* (2) (2019), DOI:10.1112/jlms.12258.
19. **L. Ephremidze**, N. Salia, I. Spitkovsky, On a parametrization of non-compact wavelet matrices by Wiener-Hopf factorization. *Trans. A. Razmadze Math. Inst.* **173** (2019), no. 3, 31-36.
20. **D. Gabelaia**, K. Gogoladze, **M. Jibladze**, **E. Kuznetsov**, **L. Uridia**, An axiomatization of the  $\$d\$$ -logic of planar polygons. *Language, logic, and computation*, 147-165, Lecture Notes in Comput. Sci., 11456, Springer, Berlin, 2019.
21. \*J. Gómez-Torrecillas, **B. Mesablishvili**, Some exact sequences associated with adjunctions in bicategories. Applications. *Trans. Amer. Math. Soc.* **371** (2019), no. 12, 8255-8295.
22. **N. Inassaridze**, **E. Khmaladze**, Public key exchange using crossed modules of groups. *Trans. A. Razmadze Math. Inst.* **173** (2019), no. 2, 101-104.
23. V. Jaoshvili, B. Mamoria, **O. Purtukhia**, stochastic integral representation of poisson functionals with an explicit form of the integrand. *Rep. Enlarged Sess. Semin. I. Vekua Inst. Appl. Math.* **33** (2019).
24. \***M. Jibladze**, T. Pirashvili, Lie theory for symmetric Leibniz algebras, *Journal of Homotopy and Related Structures*, 2019, <https://doi.org/10.1007/s40062-019-00248-x>, 18 pp.
25. \***O. Jokhadze**, **S. Kharibegashvili** and **N. Shavlakadze**, Contact interaction of the plate with a nonlinear elastic stringer. *Izv. Ross. Akad. Nauk, MTT* **2** (2019), 101-110; translation in *Mechanic of solids*.
26. \***T. Kadeishvili**, Homotopy classification of morphisms of differential graded algebras. *Georgian Math. J.* **26** (2019), no. 2, 211-226.
27. **T. Kadeishvili**, Berikashvili's functor D: generalization and application. *Trans. A. Razmadze Math. Inst.* **173** (2019), no. 2, 105-110.
28. **D. Kapanadze**, Wave propagation through a square lattice with sources online segments. *Trans. A. Razmadze Math. Inst.* **173** (2019), 111–119.
29. **G. Kapanadze**, **L. Gogolauri**, The problems of a Punch in the linear theory of viscoelasticity. *Trans. A. Razmadze Math. Inst.* **173** (2019), no. 2, 121-125.
30. \***A. Kharazishvili**, On the Steinhaus property and ergodicity via the measure-theoretic density of sets. *Real Anal. Exchange* **44** (2019), no. 1, 217-228.
31. **A. Kharazishvili**, Some remarks on the Steinhaus property for invariant extensions of the Lebesgue measure. *European J. Math.* **5** (2019), no. 1, 81-90.
32. \***A. Kharazishvili**, On orbits without the Baire property. *Georgian Math. J.* **26** (2019), no. 4, 625-628.
33. **A. Kharazishvili**, On projective functions with bad measurability properties. *Bull. TICMI* **23** (2019), no. 1, 77-81.
34. **A. Kharazishvili**, On some applications of almost invariant sets, *Bull. TICMI* **23** (2019), No 2, 5-12. 0082
35. \***S. Kharibegashvili**, B. Midodashvili, On the existence, uniqueness, and nonexistence of solutions of one boundary-value problem for a semilinear hyperbolic equation. *Ukr. Mat. Zh.* **71** (2019), no. 8, 1123-1132.
36. \***S. Kharibegashvili**, B. Midodashvili, A boundary value problem for higher-order semilinear partial differential equations. *Complex Var. Elliptic Equ.* **64** (2019), no. 5, 766776.
37. \*T. G. Khunjua a.o., Chiral imbalanced hot and dense quark matter: NJL analysis at the physical point and comparison with lattice QCD. *European Physical Journal C* **79** (2019) no. 2, 151.

38. \*T. G. Khunjua a.o., Dualities and inhomogeneous phases in dense quark matter with chiral and isospin imbalances in framework of effective model. *JHEP* (2019) 2019: 6.
39. \*T. G. Khunjua a.o., Charged pion condensation and duality in dense and hot chirally and isospin asymmetric quark matter in the framework of NJL2 model. *Phys. Rev. D* 100 (2019), 034009
40. \*T. G. Khunjua a.o., QCD phase diagram with chiral imbalance in NJL model: duality and lattice QCD results. *J. Phys. Conf. Ser.* **1390** (2019), 012015.
41. T. G. Khunjua, Charged pion condensation in dense quark matter: Nambu--Jona-Lasinio model study. *Symmetry* **11** (2019) no. 6, 778.
42. \*A. Khvedelidze, a.o., Quantifying quantumness of qubits and qutrits by Wigner functions, *J. Math Sci.* **240** (2019), 617-633.
43. A. Khvedelidze, a.o., *Записки научных семинаров ПОМИ*, **485** (2019), 5-23.
44. \*I. Kiguradze, Two-point boundary value problems for essentially singular second-order linear differential equations. (Russian) *Differ. Uravn.* **55** (2019), no. 5, 607-624; translation in *Differ. Equ.* **55** (2019), no. 5, 591-608.
45. \*I. Kiguradze, Two-point boundary value problems for essentially singular nonlinear second-order differential equations. (Russian) *Differ. Uravn.* **55** (2019), no. 6, 792-802; translation in *Differ. Equ.* **55** (2019), no. 6, 776-786.
46. \*A. Kirtadze, On Kharazishvili type measures in infinite-dimensional Polish vector spaces. *Georgian Math. J.* **26** (2019), no. 4, 537-543.
47. \*V. Kokilashvili, Weighted grand Lebesgue spaces with mixed norms and integral operators. (Russian) *Dokl. RAN* **489** (2019), no 4, 1-3; translation in *Doklady Math.* **100** (2019), no 3, 1-3.
48. V. Kokilashvili, Approximation by trigonometric polynomials in the framework of weighted fully measurable grand Lorentz spaces. *Trans. A. Razmadze Math. Inst.* **173** (2019), no. 3, 161-162.
49. V. Kokilashvili, On trigonometric approximation by angle of multivariable functions in weighted variable exponent mixed-norm Lebesgue spaces. *Bull. Georgian Natl. Acad. Sci.* **13** (2019), No 3, 7-11.
50. \*V. Kokilashvili, M. Mastylo, A. Meskhi, The measure of noncompactness of multilinear operators. *Nonlinear Anal.* **188** (2019), 70-79.
51. \*V. Kokilashvili, M. Mastylo, A. Meskhi, Compactness criteria for fractional integral operators. *Fract. Calc. Appl. Anal.* **22** (2019), no. 5, 1269-1283.
52. \*V. Kokilashvili, M. Mastylo, A. Meskhi, On the boundedness of multilinear fractional integral operators, *The Journal of Geometric Analysis*, <https://doi.org/10.1007/s12220-019-00159-6>, 2019.
53. V. Kokilashvili, A. Meskhi, Maximal and Calderón-Zygmund operators in weighted grand variable exponent Lebesgue spaces. *Trans. A. Razmadze Math. Inst.* **173** (2019), no. 2, 127-131.
54. \*V. Kokilashvili, A. Meskhi, H. Rafeiro, Commutators of sublinear operators in grand Morrey spaces. *Studia Sci. Math. Hungar.* **56** (2019), no. 2, 211-232.
55. \*V. Kokilashvili, A. Meskhi, M. A. Ragusa, Weighted extrapolation in grand Morrey spaces and applications to partial differential equations. *Atti Accad. Naz. Lincei Rend. Lincei Mat. Appl.* **30** (2019), no. 1, 67-92.
56. V. Kokilashvili, Ts. Tsanava, Angular trigonometric approximation in the framework of new scale of function spaces. *Trans. A. Razmadze Math. Inst.* **173** (2019), no. 2, 133-136.
57. V. Kokilashvili, Ts. Tsanava, Trigonometric approximation by angle in classical weighted Lorentz spaces and grand Lorentz spaces, *Trans. A. Razmadze Math. Inst.* **173** (2019), no. 3, 163-166.

58. **S. Kukudzhanov**, Eigenoscillations and stability of orthotropic shells, close to cylindrical ones, with an elastic filler and under the action of meridional forces. normal pressure and temperature, *Trans. A. Razmadze Math. Inst.* **173** (2019), no. 1, 71-82.
59. \***A. Kvinikhidze** a.o., Electromagnetic form-factors of the pion-nucleon system. *Phys. Review C* **99** (2019) no.3, 034001.
60. \***G. Lavrelashvili** a.o., Aspects of the negative mode problem in quantum tunneling with gravity. *Phys. Rev. D* **100** (2019) no. 12, 125006.
61. \***V. Lomadze**, Polynomial solutions to linear PDEs with constant coefficients. *Georgian Math. J.* **26** (2019), no. 2, 287-293.
62. \***V. Lomadze**, The predictable degree property and minimality in multidimensional convolutional coding. *Discrete Math.* **342** (2019), no. 3, 784-792.
63. B. Mamporia, **O. Purtukhia**, Banach space valued functionals of the Wiener process. *Rep. Enlarged Sess. Semin. I. Vekua Inst. Appl. Math.* **33** (2019).
64. **M. Mania**, Martingale method of solving lobachevsky's functional equation. *Materials of the Conference "Application of random processes and mathematical statistics in financial economics and social sciences"* IV, GAU, Tbilisi, 2019, pp. 23-28.
65. **B. Mesablishvili**, On descent cohomology. *Trans. A. Razmadze Math. Inst.* **173** (2019), no. 2, 137-155.
66. **N. Partsvania**, The weighted right focal boundary value problem for second order singular in the time variable functional differential equations. *Trans. A. Razmadze Math. Inst.* **173** (2019), no. 2, 157-160.
67. \***O. Purtukhia**, Z. Zerakidze, Consistent criteria for hypotheses testing. *Ukrainian Math. J.* **71** (2019), no. 4, 554–571.
68. **O. Purtukhia**, Z. Zerakidze, on consistent criteria of hypotheses testing for non-separable complete metric space. *Bull. TICMI* **23** (2019), no. 2.
69. M. Rivera, **S. Saneblidze**, A combinatorial model for the path fibration. *J. Homotopy Relat. Struct.* **14** (2019), no. 2, 393-410.
70. \***S. Saneblidze**, On the construction of a covering map. *Georgian Math. J.* **26** (2019), no. 2, 303-309.
71. **S. Saneblidze**, Intersection and string topology products in the free loop fibration. *Trans. A. Razmadze Math. Inst.* **173** (2019), no. 2, 161-164.
72. **L. Shapakidze**, Bicritical points in problem on the stability of heat-conducting flows between horizontal porous cylinders. *Trans. A. Razmadze Math. Inst.* **173** (2019), no. 3, 167-171.
73. **N. Shavlakadze, G. Kapanadze, L. Gogolauri**, About one contact problem for a viscoelastic halfplate. *Trans. A. Razmadze Math. Inst.* **173** (2019), no. 1, 103-110.
74. **N. Shavlakadze, S. Kharibegashvili, O. Jokhadze**, The adhesive contact problems in the plane theory of elasticity. *Trans. A. Razmadze Math. Inst.* **173** (2019), no. 2, 165-168.
75. \***N. Shavlakadze**, N. Odishelidze, F. Criado-Aldeanueva, The boundary value contact problem of electroelasticity for piecewise-homogeneous piezo-electric plate with elastic inclusion and cut. *Math. Mech. Solids* **24** (2019), no. 4, 968-978.
76. **Sh. Tetunashvili**, Periodically mixed series and approximation of multivariate functions. *Trans. A. Razmadze Math. Inst.* **173** (2019), no. 3, 177-179.
77. **Sh. Tetunashvili**, T. Tetunashvili, On Cantor's functionals and reconstruction of coefficients of multiple function series. *Trans. A. Razmadze Math. Inst.* **173** (2019), no. 2, 169-172.
78. **Sh. Tetunashvili**, T. Tetunashvili, On criteria of convergence in measure of a sequence of functions. *Trans. A. Razmadze Math. Inst.* **173** (2019), no. 2, 173-174.
79. **Sh. Tetunashvili**, T. Tetunashvili, Fubini's type phenomenon for convergent in Pringsheim sense multiple function series. *Trans. A. Razmadze Math. Inst.* **173** (2019), no. 3, 173-176.

80. **T. Toronjadze**, T. Uzunashvili, Stochastic models in marketing and manajment. *Materials of the Conference “Application of random processes and mathematical statistics in financial economics and social sciences” IV*, GAU, Tbilisi, 2019, pp. 23-28.
81. **L. Uridia**, D. Walther, Common Knowledge in Epistemic Logic with Hypotheses GCAI 2019. *Proceedings of the 5th lobal Conference on Artificial Intelligence*, vol 65, 13.
82. **D. Zangurashvili**, The complete regularity of some  $T_{\{0\}}$  topological protomodular algebras. *Bull. Georg. Natl. Acad. Sci.* **13** (2019), no. 2, 7-10.
83. **D. Zangurashvili**, Effective descent morphisms and colimits. *Bull. Georg. Natl. Acad. Sci.* **13** (2019), no. 3, 12-17.
84. \***D. Zangurashvili**, Associativity-like conditions on protomodular algebras. *Algebra Universalis*, doi.org/10.1007/s00012-019-0630-4.

# 2018

## (i) Monograph

2. **S. Kharibegashvili**, Some local and nonlocal multidimensional problems for a class of semilinear hyperbolic equations and systems. *Mem. Differ. Equ. Math. Phys.* **75** (2018), 1-91.

## (i) Papers

1. **M. Ashordia**, On the well-posedness of antiperiodic problem for systems of nonlinear impulsive equations with fixed impulses points. *Mem. Differ. Equ. Math. Phys.* **74** (2018), 153-164.
2. **M. Ashordia**, Sh. Akhalaia, M. Talakhadze, On the antiperiodic problem for systems of nonlinear generalized ordinary differential equations. *Mem. Differ. Equ. Math. Phys.* **73** (2018), 141-149.
3. **M. Ashordia**, M. Chania, M. Kucia, On the solvability of the periodic problem for systems of linear generalized ordinary differential equations. *Mem. Differ. Equ. Math. Phys.* **74** (2018), 7-26.
4. **M. Ashordia**, N. Kharshiladze, On the Cauchy Problem for Linear Systems of Impulsive Ordinary Differential Equations with Singularities. *Bull. Georgian Natl. Acad. Sci.* **12** (2018), no. 3, 11-16.
5. **M. Ashordia**, V. Sesadze, On the solvability and the well-posedness of the modified Cauchy problem for linear systems of generalized ordinary differential equations with singularities. *Mem. Differ. Equ. Math. Phys.* **75** (2018), 139-149.
6. \*M. Beriashvili, T. Gill, **A. Kirtadze**, On measurability of real-valued functions in infinite-dimensional topological vector spaces. *Georgian Math. J.* **25** (2018), no. 2, 195-199.
7. Sh. Beriashvili, T. Kasrashvili, **A. Kirtadze**, **On the strong uniqueness of elementary volumes in  $\mathbf{R}^2$** . *Reports of Enlarged Sessions of the Seminar of I. Vekua Institute of Applied Mathematics* **32** (2018).
8. **G. Berikelashvili**, M. M. Gupta, B. Midodashvili, Method of refinement by higher order differences for 3D Poisson equation with nonlocal boundary conditions. *Math. Sci. Lett.* **7** (2018), no. 2, 71-77.
9. **T. Buchukuri**, **O. Chkadua**, D. Natroshvili, Mixed and crack type problems of the thermopiezoelectricity theory without energy dissipation. *Mem. Differ. Equ. Math. Phys.* **74** (2018), 39-78.
10. \*J. M. Casas, R. Fernández-Casado, X. García-Martínez, **E. Khmaladze**, Actor of a crossed module of Leibniz algebras. *Theory Appl. Categ.* 33 (2018), Paper No. 2, 23-42. ISSN 1201 - 561X
11. \*J. M. Casas, **E. Khmaladze**, N. Pacheco Rego, A non-abelian Hom-Leibniz tensor product and applications. *Linear Multilinear Algebra* **66** (2018), no. 6, 1133-1152.
12. \***O. Chkadua**, S. E. Mikhailov, D. Natroshvili, Singular localised boundary-domain integral equations of acoustic scattering by inhomogeneous anisotropic obstacle. *Math. Methods Appl. Sci.* **41** (2018), no. 17, 8033-8058.

13. **თ. დათუაშვილი**, ი. ავალიშვილი, ტერმინოლოგიის საკითხები. ISSN 1987-7633, თსუ, არნოლდ ჩიქობავას სახელობის ენათმეცნიერების ინსტიტუტი, ტ. III, 2018, 53-67.
14. \*G. Donadze, X. García-Martínez, **E. Khmaladze**, A non-abelian exterior product and homology of Leibniz algebras. *Rev. Mat. Complut.* **31** (2018), no. 1, 217-236.
15. \*G. Donadze, **N. Inassaridze**, M. Ladra, A. M. Vieites, Exact sequences in homology of multiplicative Lie rings and a new version of Stallings' theorem. *J. Pure Appl. Algebra* **222** (2018), no. 7, 1786-1802.
16. \*R. Duduchava, M. Tsaava, Mixed boundary value problems for the Laplace-Beltrami equation. *Complex Var. Elliptic Equ.* **63** (2018), no. 10, 1468-1496.
17. **O. Dzagnidze**, On some new properties of quaternions functions. *J. Math. Sci.* **235** (2018), no. 5, 557-603.
18. \*D. Edmunds, **A. Meskhi**, On the Rellich inequality in  $L^{\{p(\cdot)\}(a,b)}$ . *Georgian Math. J.* **25** (2018), no. 2, 207-216.
19. \*L. Ephremidze, F. Saied, I. M. Spitkovsky, On the algorithmization of Janashia-Lagvilava matrix spectral factorization method. *IEEE Trans. Inform. Theory* **64** (2018), no. 2, 728-737.
20. \*L. Ephremidze, I. Spitkovsky, On a generalization of Smirnov's theorem with some applications. *Georgian Math. J.* **25** (2018), no. 2, 217-220.
21. \*A. Fiorenza, **V. Kokilashvili**, Nonlinear harmonic analysis of integral operators in weighted grand Lebesgue spaces and applications. *Ann. Funct. Anal.* **9** (2018), no. 3, 413-425.
22. L. Gachechiladze, T. Uzunashvili, **T. Toronjadze**, Real options valuation of hedging strategies. *Application of random processes and mathematical statistics in financial economics and social sciences III*, GAU, Tbilisi, 2018.
23. **A. Gachechiladze, R. Gachechiladze**, Unilateral contact problems for homogeneous hemitropic elastic solids with a friction. *Mem. Differ. Equ. Math. Phys.* **74** (2018), 93-111.
24. \*O. A. Glonti, **O. G. Purtukhia**, European option hedging with a nonsmooth payment function. (Russian) *Ukrain. Mat. Zh.* **70** (2018), no. 6, 773-787; translation in *Ukrainian Math. J.* **70** (2018), no. 6, 890-905.
25. **N. Inassaridze**, M. Iavich, **E. Khmaladze**, G. Iashvili, Naive algorithm to Bos-Chaum one-time signature scheme. *Bull. Georgian Natl. Acad. Sci. (N.S.)* **12** (2018), no. 2, 13-18.
26. \*D. Kapanadze, Exterior diffraction problems for two-dimensional square lattice. *Z. Angew. Math. Phys.* **69** (2018), no. 5, Art. 123, 17 pp.
27. **G. Kapanadze**, L. Kajaia, On a problem of the bending of rectangular plates weakend by a straight cut and contour of equal strength. *Appl. Math. Inform. Mech. (AMIM)* **23** (2018), No. 1, 9 pp.
28. **G. Kapanadze, L. Gogolauri**, On one problem of the plane theory of elasticity for a rectangular domain with a partially unknown boundary. *Appl. Math. Inform. Mech. (AMIM)* **23** (2018), No. 2, 10 pp.
29. M. Khachidze, **A. Kirtadze**, On the one example of application of almost invariant sets. *Reports of Enlarged Sessions of the Seminar of I. Vekua Institute of Applied Mathematics* **32** (2018).
30. \*A. Kharazishvili, On some classes of negligible subsets of the Euclidean plane. *Georgian Math. J.* **25** (2018), no. 1, 41-46.
31. \*A. Kharazishvili, A note on the Borel types of some small sets. *Georgian Math. J.* **25** (2018), no. 3, 419-425.

32. \***A. Kharazishvili**, Some remarks on the Steinhaus property for invariant extensions of the Lebesgue measure. *European J. Math.* **2018**, 48-58.
33. **A. Kharazishvili**, A note on the uniqueness property for Borel  $\$G\$$ -measures. *Real Anal. Exchange* **43** (2018), no. 1, 223-233.
34. **A. Kharazishvili**, On groups of isometries of Euclidean space and associated invariant measures. *J. Geometry* **109** (2018). DOI: <https://doi.org/10.1007/s00022-018-0422-6>
35. **A. Kharazishvili**, On generalized measurability properties of certain projective sets. *Bull. TICMI* **22** (2018), no. 1, 59-64.
36. \***S. Kharibegashvili, N. Shavlakadze, O. Jokhadze**, On the solvability of a mixed problem with a nonlinear boundary condition for a one-dimensional semilinear wave equation. *J. Contemp. Math. Anal.* **53** (2018), no. 5, 247-259.
37. \***I. T. Kiguradze, T. I. Kiguradze**, Oscillation properties of higher-order sublinear differential equations. (Russian) *Differentsial'nye Uravneniya* **54** (2018), no. 12, 1589-1603; translation in *Differential Equations* **54** (2018), no. 12, 1545-1559.
38. **I. Kiguradze, T. Kiguradze**, Oscillation criteria for higher order sublinear delay differential equations. *Researches in Mathematics and Mechanics* **23** (2018), no. 1(31), 130-137.
39. **I. Kiguradze, N. Partsvania**, Some optimal conditions for the solvability and unique solvability of the two-point Neumann problem. *Mem. Differ. Equ. Math. Phys.* **75** (2018), 115-128.
40. **A. Kirtadze, T. Qasrashvili**, On the uniqueness of elementary volumes. *J. Geometry* **109** (2018), no. 1. DOI: <https://doi.org/10.1007/s00022-018-0422-6>
41. **A. Kirtadze, N. Rusiashvili**, On some methods of extending invariant and quasi-invariant measures. *Trans. A. Razmadze Math. Inst.* **172** (2018), no. 1, 58-63.
42. \***V. Kokilashvili, A. Meskhi**, One-sided operators in grand variable exponent Lebesgue spaces. *Z. Anal. Anwend.* **37** (2018), no. 3, 251-375.
43. \***V. Kokilashvili, A. Meskhi**, Extrapolation results in grand Lebesgue spaces defined on product sets. *Positivity* **22** (2018), no. 4, 1143-1163.
44. \***V. Kokilashvili, A. Meskhi**, Extrapolation in grand Lebesgue spaces with  $\$A_{\infty}$  weights. (Russian) English version published in *Math. Notes* **104**(2018), no. 3-4, 518-529. *Mat. Zametki* **104** (2018), no. 4, 539-551.
45. \***V. Kokilashvili, A. Meskhi**, M. A. Zaighum, Sharp weighted bounds for fractional integrals via the two-weight theory. *Banach J. Math. Anal.* **12** (2018), no. 3, 673-692.
46. **V. Kokilashvili, D. Makharadze, Ts. Tsanava**, Necessary and sufficient conditions for weighted boundedness of integral transforms defined on product spaces in generalized grand Lebesgue spaces. *Bull. Georgian Natl. Acad. Sci. (N.S.)* **12** (2018), no. 2, 7-11.
47. \***A. Kvinikhidze, M. Birse**, Renormalisation group analysis of electromagnetic couplings in the pionless effective field theory. *Eur. Phys. J. A* **54** (2018), Art. 216.
48. **S. Kukudzhanov**, The stability of orthotropic shells of revolution, close to cylindrical ones, with an elastic filler, under the action of torsion, normal pressure and temperature. *Trans. A. Razmadze Math. Inst.* **172** (2018), no. 1, 64-72.
49. \***V. Lomadze**, An easy approach to distributions and operational calculus. *Z. Anal. Anwend.* **37** (2018), no. 2, 151-158.
50. \***V. Lomadze**, KW models for (multivariate) linear differential systems. *SIAM J. Control Optim.* **56** (2018), no. 1, 456-472.

51. **V. Lomadze**, On the Wiener-Hopf factorization of rational matrices. *Trans. A. Razmadze Math. Inst.* **172** (2018), no. 1, 73-81.
52. A. Mamporia, **O. Purtukhia**, On functionals of the Wiener process in a Banach space. *Trans. A. Razmadze Math. Inst.* **172** (2018), no. 3, part A, 420-428.
53. A. Mamporia, **O. Purtukhia**, About one method of stochastic integral representation of Brownian functional. *Reports of Enlarged Sessions of the Seminar of I. Vekua Institute of Applied Mathematics* **32** (2018).
54. **M. Mania**, R. Tevzadze, Connections between a system of forward-backward SDEs and backward stochastic PDEs related to the utility maximization problem. *Trans. A. Razmadze Math. Inst.* **172** (2018), no. 3, part A, 429-439.
55. **M. Mania**, R. Tevzadze, The Ito formula for non-anticipative functionals according to Chitashvili. *Application of random processes and mathematical statistics in financial economics and social sciences III*, GAU, Tbilisi, 2018.
56. \***B. Mesablishvili**, Effective descent morphisms for Banach modules. *J. Algebra Appl.* **17** (2018), no. 5, 1850092, 6 pp.
57. \***A. Meskhi**, H. Rafeiro, M. A. Zaighum, Central Calderón-Zygmund operators on Herz-type Hardy spaces of variable smoothness and integrability. *Ann. Funct. Anal.* **9** (2018), no. 3, 310-321.
58. \***A. Meskhi**, H. Rafeiro, M. A. Zaighum, Interpolation of an analytic family of operators on variable exponent Morrey spaces. *Hiroshima Math. J.* **48** (2018), no. 3, 335-346.
59. \***A. Meskhi**, Y. Sawano, Density, duality and preduality in grand variable exponent Lebesgue and Morrey spaces. *Mediterr. J. Math.* **15**(2018), no. 3, Art. 100, 15 pp.
60. E. Nadaraya, **O. Purtukhia**, Professor Gvanji Mania (1918–1985). *Trans. A. Razmadze Math. Inst.* **172** (2018), no. 3, part A, 293-298.
61. \***A. Patchkoria**, Cohomology monoids of monoids with coefficients in semimodules II. *Semigroup Forum* **97** (2018), no. 1, 131-153.
62. \***A. Pesetskaya**, R. Czapla, V. Mityushev, An analytical formula for the effective conductivity of 2D domains with cracks of high density. *Applied Mathematical Modelling*, 2018. DOI: <https://doi.org/10.1016/j.apm.2017.08.018>
63. **O. Purtukhia**, Stochastic integral representation of the payoff functions of European exotic type options. მათემატიკურ მოდელირებასა, ოპტიმიზაციასა და ინფორმაციულ ტექნოლოგიებში“ მე-6 საერთაშორისო კონფერენციის (MMOTI- 2018) მასალები (2018), გვ. 171-174.
64. \*M. Rivera, **S. Saneblidze**, A combinatorial model for the path fibration. *J. Homotopy Relat. Struc.*, published online: September 29, 2018. doi.org/10.1007/s40062-018-0216-4
65. \*M. Rivera, **S. Saneblidze**, A combinatorial model for the free loop fibration. *Bull. London Math. Soc.* **50** (2018). 1085-1101.
66. \***N. Shavlakadze**, N. Odishelidze, F. Criado-Aldeanueva, The boundary value problem for piezo-electric half space with thin elastic inclusion. *Math. Mech. Solids* **23** (2018), no. 6, 896-906.
67. \***N. Shavlakadze**, N. Odishelidze, F. Criado-Aldeanueva, The boundary value contact problem of electroelasticity for piecewise-homogeneous piezo-elastic plate with elastic inclusion and cut. *Math. Mech. Solids*, first published: March 21, 2018. <https://doi.org/10.1177/1081286518762620>

68. \***N. Shavlakadze, S. Kharibegashvili, O. Jokhadze**, Approximate and exact solution of a singular integro-differential equation related to contact problem of elasticity theory. *Prikl. Mat. i Mech.* **82** (2018), no. 1, 114-124; English. Transl.: *J. Appl. Math. Mech.* **82** (2018), no. 1.
69. \***Sh. Tetunashvili**, A note on N. Bary's one conjecture. *Georgian Math. J.* **25** (2018), no. 2, 313-316.
70. \***Sh. Tetunashvili**, Universal series and subsequences of functions. (Russian) *Mat. Sb.* **209** (2018), no. 10, 89-125.

**(i) Monographs**

3. **A. Kharazishvili**, *Strange Functions in Real Analysis*. third edition, Chapman and Hall/CRC, New York, 2017.
4. **T. Datuashvili**, Categorical, homological, and homotopical properties of algebraic objects, *J. Math. Sci. (N.Y.)* **225** (2017), no. 3, 383-533.

**(i) Papers**

71. **M. Ashordia**, On the antiperiodic problem for systems of nonlinear generalized ordinary differential equations, *Mem. Differential Equations Math. Phys.* **70** (2017), 147-154.
72. **M. Ashordia**, On the well-posedness of antiperiodic problem for systems of nonlinear impulsive differential equations with fixed impulses point, *Mem. Differential Equations Math. Phys.* **71** (2017), 139-150.
73. \***M. Ashordia**, On the solvability of the antiperiodic boundary value problem for systems of linear generalized differential equations, *Georgian Math. J.* **24** (2017), no. 2, 169-184.
74. \***M. Ashordia**, On boundary value problems for systems of nonlinear generalized ordinary differential equations, *Czech. Math. J.* **67** (2017), no. 3, 579-608.
75. \***M. Bakuradze**, Polynomial behavior of the Honda formal group law, *J. Homotopy Relat. Struct.* **12** (2017), no. 2, 299-304.
76. **M. Bakuradze** and N. Gachechiladze, Some 2-groups from the view of Hilbert-Poincaré polynomials of  $\$K(2)^*(BG)\$$ , *Tbilisi Math. J.* **10** (2017), no. 2, 103-110.
77. M. Beriashvili and **A. Kirtadze**, On the application of Bernstein type construction to measure extension problem, *Rep. Enlarged Sess. Semin. I. Vekua Inst. Appl. Math.* **31** (2017), 11-14.
78. **G. Berikelasvili**, A. Papukashvili, G. Papukashvili and J. Peradze, Iterative solution of a nonlinear static beam equation, *ArXiv preprint, Cornell University Library, USA*, 11 pp; <https://arxiv.org/pdf/1709.08687.pdf>.
79. **T. Buchukuri, O. Chkadua** and D. Natroshvili, Method of fundamental solutions for mixed and crack type problems in the classical theory of elasticity, *Trans. A. Razmadze Math. Inst.* **171** (2017), no. 3, 264-292.
80. \***T. Buchukuri, R. Duduchava** and G. Tepnadze, Laplace–Beltrami equation on hypersurfaces and  $\Gamma$ -convergence, *Math. Methods Appl. Sci.* **40** (2017), no. 13, 4637-4657.
81. \*J. M. Casas, R. F. Casado, **E. Khmaladze** and M. Ladra, More on crossed modules in Lie, Leibniz, associative and diassociative algebras, *J. Algebra Appl.* **16** (2017), no. 6, 1750107, 17 pp.
82. \*J. M. Casas and **E. Khmaladze**, On Lie-central extensions of Leibniz algebras, *Rev. R. Acad. Cienc. Exactas Fís. Nat. Ser. A Math. RACSAM* **111** (2017), no. 1, 39-56.
83. \*J. M. Casas, **E. Khmaladze** and N. Pacheco Rego, A non-abelian tensor product of Hom-Lie algebras, *Bull. Malays. Math. Sci. Soc.* **40** (2017), no. 3, 1035-1054.
84. \*J. M. Casas, **E. Khmaladze** and N. Pacheco Rego, A non-abelian Hom-Leibniz tensor product and applications, *Linear and Multilinear Algebra* (Taylor and Francis), (published online: 21 June, 2017), 20 pages (<http://dx.doi.org/10.1080/03081087.2017.1338651>)

85. \***O. Chkadua**, S. Mikhailov and D. Natroshvili, Localized boundary-domain singular integral equations of dirichlet problem for self-adjoint second order strongly elliptic PDE systems, *Math. Methods Appl. Sci.* **4** (2017), 1817-1837.
86. \*G. Donadze, X. Garcia-Martinez and **E. Khmaladze**, A non-abelian exterior product and homology of Leibniz algebras, *Rev. Mat. Complut.* **31** (2018), no. 1, 217-236 (published online: 22 July 2017).
87. G. Donadze, **N. Inassaridze** and M. Ladra, Non-abelian tensor and exterior products of multiplicative Lie rings, *Forum Math.* **29** (2017), no. 3, 563-574.
88. \***R. Duduchava** and M. Tsaava, Mixed boundary value problems for the Laplace-Beltrami equation, *Complex Variables and Elliptic Equations*, Published online: 20 Oct. 2017, p. 29.
89. \***O. Dzagnidze**, Symmetric convergence of double series whose coefficients are the quotients of divisions of complex Fourier coefficients by their indexes, *Georgian Math. J.* **24** (2017), no. 4, 507-516.
90. **O. Dzagnidze**, One-dimensional Fourier series of a function of many variables. *Trans. A. Razmadze Math. Inst.* **171** (2017), no. 2, 167-170.
91. \***M. Eliashvili**, D. Kereselidze, **G. Tsitsishvili** and M. Tsitsishvili, Edge states of a periodic chain with four-band energy spectrum, *J. Phys. Soc. Jpn.* **86** (2017), 074712.
92. \***M. Eliashvili** and **G. Tsitsishvili**, Boundary conditions and formation of pure spin currents in magnetic field, *Physica E* **93** (2017), 196.
93. **L. Ephremidze**, W. H. Gerstacker and I. Spitkovsky, On Robinson's energy delay theorem, *Trans. A. Razmadze Math. Inst.* **171** (2017), 16-23.
94. \***L. Ephremidze**, F. Saied, and I. Spitkovsky, On the algorithmization of Janashia-Lagvilava matrix spectral factorization method, *IEEE Trans. Inform. Theory*, 2017; <http://ieeexplore.ieee.org/document/8105834/> DOI: 10.1109/TIT.2017.2772877.
95. \***L. Ephremidze**, I. Selesnick, and I. Spitkovsky, On non-optimal spectral factorizations, *Georgian Math. J.* DOI: <https://doi.org/10.1515/gmj-2017-0020>.
96. \*A. Fiorenza, **V. Kokilashvili** and **A. Meskhi**, Hardy-Littlewood maximal operator in weighted grand variable exponent Lebesgue space, *Mediterranean J. Math.* **14** (2017), no. 3, Art 118, 20 pp. DOI 10.1007/s00009-017-0921-y 1660-5446/17/030001-20.
97. M. Gabidzashvili, **V. Kokilashvili** and **Ts. Tsanava**, Fundamental inequalities for trigonometric polynomials in new function spaces and applications, *Bull. Georgian Natl. Acad. Sci.* **11** (2017), No 1, 1-5.
98. A. Gagnidze, M. Iavich, **N. Inassaridze** and G. Iashvili, Analysis of one-time signature schemes, *Scientific and Practical Cyber Security Journal* **1** (2017), no. 1, 20-23.
99. A. Gagnidze, M. Iavich, **N. Inassaridze**, G. Iashvili and V. Vyalkova, Critical analysis of Hash based signature schemes, *International Journal of Cyber-Security and Digital Forensics* **7** (2017), no. 1, 47-55.
100. V. P. Gerdt, **A. M. Khvedelidze** and Yu. Palii, On the ring of local unitary invariants for mixed X-states of two qubits, *J. Math. Sci.* **224** (2017), no. 2, 238-249.
101. J. Gilleas and **A. Meskhi**, Sharp weighted bounds for the Hilbert transform of odd and even functions, *Trans. A. Razmadze Math. Inst.* **171** (2017), no. 1, 24-31.
102. \*O. Glonti and **O. Purtukhia**, On one integral representation of functionals of Brownian motion, *SIAM J. Theory of Probability & Its Applications*, **61** (2017), no. 1, 133-139.
103. **E. Gordadze**, On a linear conjugation boundary value problem for piecewise-continuous coefficients, *Bull. Georgian Natl. Acad. Sci.* **11** (2017), no. 1, 16-22.

104. \*M. Heinze and **G. Jorjadze**, Quantization of the AdS3 superparticle on  $OSP(1|2)^2/\text{SL}(2,\mathbb{R})$ , *Nuclear Physics B* **915** (2017), 44.
105. \*M. Heinze, **G. Jorjadze** and L. Megrelidze, Coset construction of *AdS* particle dynamics, *J. Math. Phys.* **58** (2107), no.1, 012301.
106. **N. Inassaridze** and M. Joglidze, On digital signature schemes, Analysis of one-time signature schemes, *Scientific and Practical Cyber Security Journal* **1** (2017), no. 2, 56-60.
107. V. Jaoshvili and **O. Purtukhia**, Hedging of barrier type one european option, *Rep. Enlarged Sess. Semin. I. Vekua Inst. Appl. Math.* **31** (2017), 119-122.
108. **T. Kadeishvili**, Chapter in the book *Lie groups, Differential equations, and Geometry: B(infinity)-algebra Structure in Homology of a Homotopy Gerstenhaber Algebra*, Unipa Springer Series, 2017, 85-108.
109. \***T. Kadeishvili**, Homotopy classification of morphisms of differential graded algebras, *Georgian Math. J.* DOI: <https://doi.org/10.1515/gmj-2017-0029>
110. **G. Kapanadze**, About one problem of the plane theory of elasticity with a partially unknown boundary, *Seminar of I. Vekua Inst. Appl. Math., Reports* **43** (2017), 1-7.
111. **G. Kapanadze**, The problem of finding an equally strong contour for a rectangular plate weakened by a rectilinear cut, whose ends are cut out by convex smooth arcs, *Proc. I. Vekua Inst. Appl. Math.* **67** (2017), 1-7.
112. **A. Kharazishvili**, On Mazurkiewicz sets from the measure-theoretical point of view, *Bull. TICMI* **21** (2017), no. 1, 45-54.
113. \***A. Kharazishvili**, A characterization of sets containing absolutely non-measurable subsets, *Georgian Math. J.* **24** (2017), no. 2, 211-216.
114. **S. Kharibegashvili** and G. Dekanoidze, On the global solvability of the first Darboux problem for one class of nonlinear second order hyperbolic systems, *Mem. Differential Equations Math. Phys.* **71** (2017), 51-68.
115. \***S. Kharibegashvili** and B. Midodashvili, One nonlocal problem in time for a semilinear multidimensional wave equation, *Lith. Math. J.* **57** (2017), no. 3, 331-350.
116. **A. Khvedelidze** and A. Torosyan, The spectrum and separability of mixed two-qubit mixed X-states, *J. Math. Sci.* **224** (2017), no. 2, 349-359.
117. \***I. Kiguradze** and T. Kiguradze, Analog of the first Fredholm theorem for higher-order nonlinear differential equations, (Russian) *Differ. Uravn.* **53** (2017), no. 8, 1024-1032; English translation: *Differ. Equ.* **53** (2017), no. 8, 996-1004.
118. \***I. Kiguradze** and Z. Sokhadze, On a boundary value problem on an infinite interval for nonlinear functional differential equations, *Georgian math. J.* **24** (2017), no. 2, 217-225.
119. **A. Kirtadze** and N. Rusiashvili, On some methods of extending invariant and quasi-invariant measures, *Trans. A. Razmadze Math. Inst.*; <https://doi.org/10.1016/j.trmi.2017.08.002>
120. **A. Kirtadze** and N. Rusiashvili, Almost surjective homomorphisms and their measurability, *Rep. Enlarged Sess. Semin. I. Vekua Inst. Appl. Math.* **31** (2017), 79-82.
121. **V. Kokilashvili** and **A. Meskhi**, The Boundedness of sublinear operators in weighted Morrey spaces defined on spaces of homogeneous type, in: Jain P., Schmeisser HJ. (eds.) *Function Spaces and Inequalities, Springer Proceedings in Mathematics & Statistics*, vol. 206, 193-211, Springer, 2017.

122. \***V. Kokilashvili, A. Meskhi** and H. Rafeiro, Boundedness of sublinear operators in weighted grand Morrey spaces (Russian), *Mat. Zametki* **102** (2017), No 5, 721-735. English Translation: *Math. Notes* **102** (2017), no. 5, 664–676.
123. \***V. Kokilashvili, A. Meskhi** and M. A. Zaighum, Sharp weighted bounds for one-sided operators, *Georgian Math. J.* **24** (2017), no. 2, 227-240.
124. \***V. Kokilashvili** and **V. Paatashvili**, On the Riemann-Hilbert boundary value problem for generalized analytic functions in the framework of variable exponent spaces. *Mathematical Methods in the Applied Sciences*, DOI: 10.1002/mma.4528.
125. \***V. Kokilashvili** and **V. Paatashvili**, Riemann-Hilbert problem in the class of Cauchy-type integrals with densities of grand Lebesgue spaces. *Complex Variables and Elliptic Equations* DOI/10.1080/17475933.2017./357705.
126. **N. Lazrieva** and **T. Toronjadze**, Recursive estimation procedures for one-dimensional parameter of statistical models associated with semimartingales, *Trans. A. Razmadze Math. Inst.* **171** (2017), no. 1, 57-75.
127. **N. Lazrieva** and **T. Toronjadze**, Recursive estimation of one-dimensional parameter of compound Poisson process, materials of conference, in: *Application of Random Processes and Mathematical Statistics in Financial Economics and Social Sciences II*, GAU, Tbilisi, 2017, 5 pages.
128. H. Livinska and **O. Purtukhia**, Hedging of the european option of the exotic type with a nonsmooth payoff function, *Bull. TICMI* **21** (2017), no. 2, 81-95.
129. **V. Lomadze**, On the Wiener-Hopf factorization of rational matrices, *Trans. A. Razmadze Math. Ins.*, <http://dx.doi.org/10.1016/j.trmi.2017.09.001>.
130. \***V. Lomadze**, On the reduction of high order linear PDEs to first order, *Linear Algebra Appl.* **530** (2017), 1-14.
131. \***V. Lomadze**, Converting high order linear PDEs to first order: noncommutative case, *Systems Control Lett.* **109** (2017), 49-52.
132. **B. Magradze**, Strong coupling constant from hadronic  $\tau$  decays within the dispersive treatment, *Bull. Georgian Natl. Acad. Sci.* **11** (2017), no. 3, 60-67.
133. \***M. Mania** and R. Tevzadze, On regularity of primal and dual dynamic value functions related to investment problems and their representations as backward stochastic PDE solutions, *SIAM J. Financial Math.* **8** (2017), no. 1, 483-503.
134. **M. Mania** and R. Tevzadze, A System of FBSDE related to utility maximization problem, *Rep. Enlarged Sess. Semin. I. Vekua Inst. Appl. Math.* 31 (2017), 137-142.
135. **M. Mania** and R. Tevzadze, Connections between a system of Forward-Backward SDEs and Backward Stochastic PDEs related to the utility maximization problem, in: *Application of Random Processes and Mathematical Statistics in Financial Economics and Social Sciences II*, GAU, Tbilisi, 2017, 5 pages.
136. \***B. Mesablishvili**, Effective descent morphisms for Banach modules, *J. Algebra Appl.* **16** (2018), no. 2; <https://doi.org/10.1142/S0219498818500925>
137. \***B. Mesablishvili** and R. Wisbauer, The fundamental theorem for weak braided bimonads, *J. Algebra* **490** (2017), 55-103.
138. \***A. Meskhi**, H. Rafeiro and M. A. Zaighum, On the Boundedness of Marcinkiewicz Integrals on Continual Variable Exponent Herz spaces, *Georgian Math. J.* Published Online: 2017-11-29 | DOI: <https://doi.org/10.1515/gmj-2017-0050>.
139. \***A. Meskhi**, H. Rafeiro and M. A. Zaighum, Central Calderon-Zygmund operators on Herz type Hardy spaces of variable smoothness and integrability, *Annals of Functional Analysis*,

2017, <http://dx.doi.org/10.1215/20088752-2017-0030>.

140. \***A. Meskhi**, H. Rafeiro and M. A. Zaighum, Complex interpolation on variable exponent Campanato spaces of order  $k$ , *Complex Variable and Elliptic Equations* **62** (2017), No 6, 795-813.
141. **N. Partsvania**, On some nonlocal boundary value problems for nonlinear ordinary differential equations with delay, *Researches in Mathematics and Mechanics* **22** (2017), no. 2(30), 116-121.
142. **A. Patchkoria**, On homology monoids of simplicial abelian monoids, *Bull. Georgian Natl. Acad. Sci.* **11** (2017), no. 2, 7-11.
143. **A. Patchkoria**, Relationship between homology of a simplicial semimodule and homology of its module completion, *Bull. Georgian Natl. Acad. Sci.* **11** (2017), no. 3, 28-33.
144. \***A. Patchkoria**, *Cohomology monoids of monoids with coefficients in semimodules II*, Semigroup Forum (2017); <https://doi.org/10.1007/s00233-017-9900-7> (Springer).
145. **O. Purtukhia** and Z. Zerakidze, The weakly consistent, strongly consistent and consistent estimates of the parameters. *Rep. Enlarged Sess. Semin. I. Vekua Inst. Appl. Math.* **31** (2017), 151-154.
146. **S. Saneblidze**, The loop cohomology of a space with the polynomial cohomology algebra, *Trans. A. Razmadze Math. Inst.* **171** (2017), no. 3, 389-395.
147. \***L Shapakidze**, On the bifurcations of dean flow between porous horizontal cylinders with a radial flow and a radial temperature gradient, *J. Appl. Math. Phys.* **5** (2017), 1725-1738.
148. \***N. Shavlakadze**, Contact problem of electroelasticity for a piecewise homogeneous piezoelectric plate with an elastic coating, (Russian) *Prikl. Mat. i Mech.* **81** (2017), no. 3, 337-347; English translation: *J. Appl. Math. Mech.* **81** (2017), no. 3, 228-235.
149. \***N. Shavlakadze**, N. Odishelidze and F. Criado-Aldeanueva, The contact problem for a piecewise-homogeneous orthotropic plate with a finite inclusion of variable cross-section. *Math. Mech. Solids* **22** (2017), no. 6, 1326-1333.
150. \***N. Shavlakadze**, N. Odishelidze and F. Criado-Aldeanueva, The boundary value problem for piezo-elastic half space with thin elastic inclusion, *Mathematics and Mechanics of Solids*, published online on March 21, 2017, <https://doi.org/10.1177/1081286517694936>.
151. \***Sh. Tetunashvili**, Functional series representable as a sum of two universal series, *Dokl. Math.* **477** (2017), no. 3, 276-277.
152. \***Sh. Tetunashvili**, On some properties of summability methods with variable order, *Georgian Math. J.* DOI:<https://doi.org/10.1515/gmj-2017-0018>.
153. È. B. Vinberg, **M. Jibladze** and **A. G. Elashvili**, Moduli algebras of some non-semiquasi-homogeneous singularities, (Russian) translated from *Funktional. Anal. i Prilozhen.* **51** (2017), no. 2, 10-24; *Funct. Anal. Appl.* **51** (2017), no. 2, 86-97.

# 2016

## (i) Monographs

5. **T. Buchukuri, O. Chkadua** and D. Natroshvili, mathematical problems of generalized thermo-electro-magneto-elasticity theory. *Mem. Differential Equations Math. Phys.* **68** (2016), 1-166.
6. **N. Inasaridze**, Some aspects of homotopic algebra and non-Abelian (co)homology theories. Translated from *Sovrem. Mat. Prilozh.* No. 93 (2014). *J. Math. Sci. (N.Y.)* **213** (2016), no. 1, 1-129.
7. **ა. ხარაზიშვილი**, კომბინატორული გეომეტრიის ელემენტები, ნაწილი I, (ინგლისურ ენაზე): **A. Kharazishvili**, Elements of Combinatorial Geometry, Part 1), საქართველოს მეცნიერებათა ეროვნული აკადემიის გამომცემლობა, თბილისი, 2016, 300 გვ.
8. **V. Kokilashvili, A. Meskhi**, H. Rafeiro and S. Samko, Integral operators in non-standard function spaces: Variable exponent Lebesgue and amalgam spaces, Volume 1. *Birkhäuser/ Springer, Heidelberg*, 2016, 576 pages.
9. **V. Kokilashvili, A. Meskhi**, H. Rafeiro and S. Samko, Integral operators in non-standard function spaces: Variable exponent Hölder, Morrey-Campanato and grand spaces, Volume 2. *Birkhäuser/ Springer, Heidelberg*, 2016, 428 pages.

## (i) Papers

1. **M. Ashordia**, On the Opial type criterion for the well-posedness of the Cauchy problem for linear systems of generalized ordinary differential equations. *Math. Bohem.* **141** (2016), no. 2, 183-215.
2. **M. Ashordia**, On the solvability of the antiperiodic problem for linear systems of impulsive equations. *Mem. Differential Equations Math. Phys.* **69** (2016), 105-111.
3. **M. Ashordia**, On the well-posedness of antiperiodic problem for systems of linear generalized differential equations. *Mem. Differential Equations Math. Phys.* **69** (2016), 113-122.
4. **M. Ashordia**, On the Opial type criterion for the well-posedness of the Cauchy problem for linear systems of ordinary differential equations. *Trans. A. Razmadze Math. Inst.* **170** (2016), 149-165.
5. **M. Bakuradze**, A. Gamkrelidze and I. Gubeladze, Affine hom-complexes. *Port. Math.* **73** (2016), no. 3, 183-205.
6. **M. Bakuradze** and N. Gachechiladze, Morava K-theory rings of the extensions of  $C_2$  by the products of cyclic 2-groups. *Moscow Math. J.* 16 (2016), no. 3, 17pp.
7. **M. Bakuradze**, Polynomial behavior of the Honda formal group law, *Journal of Homotopy and Related Structures*, published online DOI:10.1007/s40062-016-0128-0, 6p.
8. **M. Bakuradze and M. Jibladze**, Some explicit expressions concerning BP. *Georgian Math. J.* **23** (2016), no. 2, 157-167.

9. Ph. Balbiani, D. Pearce and **L. Uridia**, On logics of group belief in structured coalitions. *Logics in Artificial Intelligence*, Volume 10021 of the series *Lecture Notes in Computer Science*, pp. 97-111, 2016.
10. A. Baltag, **N. Bezhanishvili**, A. Özgün and S. Smets, Justified belief and the topology of evidence. *Logic, Language, Information, and Computation*, Volume 9803 of the series *Lecture Notes in Computer Science*, pp. 83-103, 2016.
11. \***G. Berikashvili** and B. Midodashvili, Method of corrections by higher order differences for elliptic equations with variable coefficients. *Georgian Math. J.* **23** (2016), no. 2, 169-180.
12. **G. Berikashvili**, N. Khomeriki, and M. Mirianashvili, On the convergence rate analysis of one difference scheme for Burgers' equation. *Mem. Differential Equations Math. Phys.* **69** (2016), 33-42.
13. **G. Berikashvili** and B. Midodashvili, Method of corrections by higher order differences for Poisson equation with nonlocal boundary conditions. *Trans. A. Razmadze Math. Inst.* **170** (2016), no. 2, 287-296.
14. G. Bezhanishvili, **N. Bezhanishvili** and R. Iemhoff, Stable canonical rules. *J. Symb. Log.* **81** (2016), no. 1, 284-315.
15. G. Bezhanishvili, **N. Bezhanishvili** and J. Ilin, Cofinal Stable Logics. *Studia Logica* **104** (2016), no. 6, 1287-1317.
16. G. Bezhanishvili, **N. Bezhanishvili**, J. Lucero-Bryan and J. van Mill, Localic Krull dimension. *PAMM. Proc. Appl. Math. Mech.* **16** (2016), 897- 898; DOI 10.1002/pamm.201610437.
17. G. Bezhanishvili, **N. Bezhanishvili**, S. Sourabh and Y. Venema, Irreducible Equivalence Relations, Gleason Spaces, and de Vries Duality. *Applied Categorical Structures* (2016). DOI: 10.1007/s10485-016-9434-2
18. G. Bezhanishvili, **D. Gabelaia** and **M. Jibladze**, Spectra of compact regular frames. *Theory Appl. Categ.* **31** (2016), Paper no. 12, 365-383.
19. **N. Bezhanishvili**, **D. Gabelaia**, S. Ghilardi and **M. Jibladze**, Admissible bases via stable canonical rules. *Studia Logica* **104** (2016), no. 2, 317-341.
20. S. F. Bramberger, **G. Lavrelashvili** and J. L. Lehners, Quantum tunneling from paths in complex time. *Phys. Rev. D* **94** (2016), no. 6, 064032.
21. **T. Buchukuri**, **O. Chkadua** and D. Natroshvili, Mixed boundary value problems of pseudo-oscillations of generalized thermo-electro-magneto-elasticity theory for solids with interior cracks. *Trans. A. Razmadze Math. Inst.* **170** (2016), no. 3, 308-351.
22. **T. Buchukuri**, **R. Duduchava** and G. Tephnadze, Dirichlet problem for Laplace–Beltrami equation on hypersurfaces – FEM approximation. *Trans. A. Razmadze Math. Inst.* **170** (2016), no. 3, 300-307.
23. J. M. Casas, R. Fernandez-Casado, **E. Khmaladze** and M. Ladra, More on crossed modules of Lie, Leibniz, associative and diassociative algebras. *J. Algebra and its Applications*, DOI: 10.1142/S0219498817501079.
24. J. M. Casas and **E. Khmaladze**, On Lie-central extensions of Leibniz algebras. *Revista Real Academia de Ciencias Exactas, Fisicas y Naturales, Serie A, Matematicas* (published online), 2016.

25. **O. Chkadua, R. Duduchava** and **D. Kapanadze**, Screen type mixed boundary value problems for anisotropic pseudo-Maxwell's equations. *Georgian Math. J.* **23** (2016), no. 4, 511-518.
26. **O. Chkadua, R. Duduchava** and **D. Kapanadze**, Screen type problems for anisotropic pseudo-Maxwell's equations. *Ann. Funct. Anal.* **7** (2016), no. 2, 217-231.
27. **O. Chkadua**, S. Mikhailov and D. Natroshvili, Localized boundary-domain singular integral equations of Dirichlet problem for self-adjoint second order strongly elliptic PDE systems. *Mathematical Methods in the Applied Sciences*. DOI:10.1002/mma.4100 2016.
28. V. D. Didenko and **R. Duduchava**, Mellin convolution operators in Bessel potential spaces. *J. Math. Anal. Appl.* **443** (2016), no. 2, 707-731.
29. G. Donadze, **N. Inassaridze** and M. Ladra, Non-abelian tensor and exterior products of multiplicative Lie rings. *Forum Math.* (published online), 2016.
30. **M. Eliashvili** and **G. Tsitsishvili**, Electron in magnetic field under restricted geometry. *Bull. Georgian Natl. Acad. Sci. (N.S.)* **10** (2016), no. 2, 53-58.
31. **M. Eliashvili, G. Tsitsishvili** and G. Japaridze, The quantum group and Harper equation on a honeycomb lattice. *J. Math. Sci. (N.Y.)* **216** (2016), no. 4, 522-526.
32. \***L. Ephremidze**, E. Shargorodsky and I. Spitkovsky. Quantitative results on continuity of the spectral factorization mapping in the scalar case, *Bol. Soc. Mat. Mex.* (Boletín de la Sociedad Matemática Mexicana) **22**(2016), 517-527.
33. I. Gabisonia, **V. Kokilashvili** and D. Makharadze, On the approximation of periodic functions in variable exponent Lorentz spaces. *Bull. Georgian Nats. Acad. Sci.* **10** (2016), no. 1, 1-5.
34. **A. Gachechiladze** and **R. Gachechiladze**, Unilateral contact problems with a friction. *Trans. A. Razmadze Math. Inst.* **170** (2016), no. 3, 363-375.
35. **A. R. Gachechiladze** and **R. I. Gachechiladze**, One-sided contact problems with friction arising along the normal. Translation of *Differ. Uravn.* **52** (2016), no. 5, 589-607. *Differ. Equ.* **52** (2016), no. 5, 568-586.
36. V. P. Gerdt, **A. Khvedelidze** and Yu. Palii, On the ring of local unitary invariants for mixed X-states of two qubits. *Zapiski Nauchnikh Seminarov POMI* **448** (2016), 107-123.
37. \*O. Glonti and **O. Purtukhia**, Об одном интегральном представлении броуновского функционала. *Теория вероятностей и ее применения* **61** (2016), Выпуск 1, 158-164.
38. **V. Gogokhia** and G. G. Barnaföldi, General exact solutions for the full gluon propagator in QCD with the mass gap. *Inter. Jour. Mod. Phys. A* **31** (2016), 1645027.
39. **V. Gogokhia, A. Shurgaia** and M. Vasúth, The temperature-dependent Yang-Mills trace anomaly as a function of the mass gap. *Inter. Jour. Mod. Phys. A* **31** (2016), 1645026.
40. **H. Inassaridze**, K-regularity of locally convex algebras. *J. Homotopy Relat. Struct.* **11** (2016), no. 4, 869-884.
41. **T. Kadeishvili**,  $B_\infty$ -algebra structure in homology of a homotopy gerstenhaber algebra. *J. Math. Sci. (N.Y.)* **218** (2016), no. 6, 778-787.
42. **T. Kadeishvili**,  $B_\infty$  -algebra structure in homology of a homotopy gerstenhaber algebra. In: *Lie groups, Differential equations, and Geometry*, 65-42, Unipa Springer Series, 2016.

43. **D. Kapanadze**, W. Misuris and E. Pesetskaya, Relationship between the effective thermal properties of linear and nonlinear doubly periodic composites. *ZAMM Z. Angew. Math. Mech.* **96** (2016), no. 7, 780-790.
44. **G. Kapanadze** and **L. Gogolauri**, On one problem of the plane theory of elasticity for circular domain with a rectangular hole. *Trans. A. Razmadze Math. Inst.* **170** (2016), no. 1, 62-68.
45. \*T. Kastrashvili, **A. Kirtadze**, Elementary volume and measurability properties of additive functions. *Georgian Math. J.* **23** (2016), no. 1, 69-73.
46. **A. Kharazishvili**, On negligible and absolutely nonmeasurable subsets of uncountable solvable groups. *Trans. A. Razmadze Math. Inst.* **170** (2016), no. 1, 69-74.
47. **A. Kharazishvili**, On the cardinal number of the family of all invariant extensions of a nonzero sigma-finite invariant measure. *Trans. A. Razmadze Math. Inst.* **170** (2016), no. 2, 200-204.
48. **A. Kharazishvili**, Absolute null subsets of the plane with bad orthogonal projections. *Real Anal. Exchange* **41** (2015-2016), no. 1, 233-244.
49. \***A. Kharazishvili**, On the difference between a Vitali-Bernstein selector and a partial Vitali-Bernstein selector. *Georgian Math. J.* **23** (2016), no. 3, 387-392.
50. \***A. Kharazishvili**. Cantor's diagonalization method, Inference: *International Review of Science*, Paris, 2, issue 3, 2016, 11 p.
51. \***S. S. Kharibegashvili** and **O. M. Jokhadze**, On solvability of a periodic problem for a nonlinear telegraph equation. *Siberian Math. J.* **57** (2016), no. 4, 735-743.
52. \***S. S. Kharibegashvili** and **O. M. Jokhadze**, On the solvability of a boundary value problems for nonlinear wave equations in angular domains. (Russian) *Differentsial'nye Uravneniya* **52** (2016), no. 5, 644-666.
53. **S. Kharibegashvili** and **O. Jokhadze**, The Cauchy-Darboux problem for wave equations with a nonlinear dissipative term. *Mem. Differential Equations Math. Phys.* **69** (2016), 53-75.
54. **S. Kharibegashvili** and **O. Jokhadze**, A short survey of scientific results of academician Andria Bitsadze. *Mem. Differential Equations Math. Phys.* **69** (2016), 1-14.
55. **S. Kharibegashvili** and **O. Jokhadze**, The second Darboux problem for the wave equation with integral nonlinearity. *Trans. A. Razmadze Math. Inst.* **170** (2016), no. 3, 385-394.
56. **S. Kharibegashvili**, **V. Kokilashvili**, and T. Jangveladze, On the occasion of Andro Bitsadze's 100th birthday anniversary (May 22, 1916–September 6, 1994). *Trans. A. Razmadze Math. Inst.* **170** (2016), no. 3, 297-299.
57. **A. Khvedelidze**, D. Mladenov and I. Rogojin, On a charged particle's spin evolution induced by a strong laser. *Journal of Physics: Conference Series* **672** (2016), 012002.
58. **A. Khvedelidze** and A. Torosyan, The spectrum and separability of mixed two-qubit mixed X-states. *Zapiski Nauchnikh Seminarov POMI* **448** (2016), 270-285.
59. \***I. Kiguradze** and Z. Sokhadze, On nonlinear boundary value problems for higher order functional differential equations. *Georgian Math. J.* **23** (2016), no. 4, 537-550.
60. **I. Kiguradze**, Oscillatory solutions of higher order nonlinear nonautonomous differential systems. *Mem. Differential Equations Math. Phys.* **69** (2016), 123-127.
61. **A. Kirtadze**, On small sets from the measure-theoretical point of view. *Trans. A. Razmadze Math. Inst.* **170** (2016), no. 2, 205-207.

62. **A. Kirtadze**, Additive functions from measure-theory point-view. *J. Math. Statistics Sci.* **2** (2016), 513-523.
63. \***V. Kokilashvili, A. Meskhi** and H. Rafeiro, Operators in generalized weighted Morrey spaces. *Dokl. Mathematics* **94** (2016), no. 2, 558-560.
64. \***V. Kokilashvili**, M. Mastylo and **A. Meskhi**, Multilinear integral operators in weighted grand Lebesgue spaces. *Frac. Calc. Appl. Anal.* **19** (2016), no. 3, 691-724.
65. \***V. Kokilashvili and A. Meskhi**, Weighted extrapolation in Iwaniec-Sbordone spaces. Applications to integral operators and theory of approximation. *Proc. Steklov Math. Inst.* **293** (2016), 161-185. Original Russian Text published in *Trudy Mat. Inst. Steklov.* **293** (2016), 167-192.
66. \***V. Kokilashvili, A. Meskhi and V. Paatashvili**, The Riemann boundary value problem in the class of Cauchy type integrals with densities of grand variable exponent Lebesgue spaces. *Georgian Math. J.* **23** (2016), no. 4, 551-558.
67. **V. Kokilashvili, A. Meskhi** and M. A. Zaighum, Sharp weighted bounds for multiple integral operators. *Trans. A. Razmadze Math. Inst.* **170** (2016), no. 1, 75-90.
68. **V. Kokilashvili, A. Meskhi and V. Paatashvili**, The Riemann–Hilbert problem in the class of Cauchy type integrals with densities of grand Lebesgue spaces, *Trans. A. Razmadze Math. Inst.* **170** (2016), no. 2, 208-211.
69. **V. Kokilashvili, A. Meskhi and V. Paatashvili**, Generalized singular integral on Carleson curves in weighted grand Lebesgue spaces. *Trans. A. Razmadze Math. Inst.* **170** (2016), no. 2, 212–214.
70. **S. Kukudzhanov**, Some problems of oscillation and stability of prestressed shells of rotation close to cylindrical ones, with an elastic filler and under the action of temperature. *Trans. A. Razmadze Math. Inst.* **170** (2016), no. 3, 410-419.
71. A. Livinska and **O. Purtukhia**, Stochastic integral representation of one stochastically non-smooth Wiener Functional. *Bulletin of TICMI*, Tbilisi, I. Vekua Institute of Applied Mathematics, **20** (2016), no. 2, 11-23.
72. \***V. Lomadze**, Proper representations of (multivariate) linear differential systems. *Systems Control Lett.* **94** (2016), 25-30.
73. \***V. Lomadze**, Converting high order linear PDEs to first order. *Systems Control Lett.* **94** (2016), 107-110.
74. \***V. Lomadze**, Taylor approximations of multidimensional linear differential systems. *Internat. J. Control* **89** (2016), no. 6, 1091-1095.
75. \***A. Meskhi**, H. Rafeiro and M. A. Zaighum, Interpolation on variable Morrey spaces defined on quasi-metric measure spaces, *J. Funct. Anal.* **270** (2016), no. 10, 3946-3961.
76. \***A. Meskhi** and M. A. Zaighum, Weighted kernel operators in  $L^{p(x)}(R)$  spaces. *J. Math. Ineq.* **10** (2016), no. 3, 623-639.
77. \***A. Meskhi**, H. Rafeiro and M. A. Zaighum, Complex interpolation on variable exponent Campanato spaces of order \$k\$, *Complex variable and Elliptic Equations*, published online, <http://dx.doi.org/10.1080/17476933.2016.1244190>.
78. **N. Partsvania**, On some nonlinear boundary value problems on a finite and an infinite intervals for systems of functional differential equations. *Mem. Differential Equations Math.*

*Phys.* **67** (2016), 137-140.

79. **N. Partsvania**, On oscillatory and monotone solutions of nonlinear functional differential systems. *Mem. Differential Equations Math. Phys.* **69** (2016), 129-133.
80. \***N. Partsvania** and **Z. Sokhadze**, Oscillatory and monotone solutions of first-order nonlinear delay differential equations. *Georgian Math. J.* **23** (2016), no. 2, 269-277.
81. **O. Purtukhia**, On the smoothness of conditional mean of some stochastically non-smooth functional. *Rep. Enlarged Session Semin. I. Vekua Inst. Appl. Math.* **30** (2016).
82. **O. Purtukhia**, Stochastic integral representation of one non-smooth brownian functional. *Bull. Georgian Natl. Acad. Sci.* **10** (2016), no. 3, 17-26.
83. G. Samsonadze and **D. Zangurashvili**, Effective codescent morphisms in the varieties determined by convergent term rewriting systems. *Tbilisi Math. J.* **9** (2016), no. 1, 49-64.
84. **S. Saneblidze**, Filtered Hirsch algebras. *Trans. A. Razmadze Math. Inst.* **170** (2016), no. 1, 114-136.
85. **L. Shapakidze**, On the nonlinear dynamical system of amplitude equations corresponding to intersection of bifurcations in the between permeable cylinders with radial and axial flows. *J. Math. Sci.* **218** (2016), no. 6, 820-828, DOI:10.1007/s10958-016-3070-0.
86. **N. Shavlakadze**, The boundary contact problem of electroelasticity and related integral differential equations. *Trans. A. Razmadze Math. Inst.* **170** (2016), no. 1, 107-113.
87. **N. Shavlakadze**, **S. Kharibegashvili**, and **O. Jokhadze**, An approximate solution of one class of singular integro-differential equations. *Trans. A. Razmadze Math. Inst.* **170** (2016), 420-426.
88. \***N. Shavlakadze** and N. Odishelidze, Francesco Criado-Aldeanueva. The contact problem for a piecewise-homogeneous orthotropic plate with a finite inclusion of variable cross-section. *Mathematics and Mechanics of Solids*. 1081286516631160, first published on february. 29, 2016 as DOI 1177/1081286516631160
89. J. van Benthem, **N. Bezhanishvili** and W. H. Holliday, A bimodal perspective on possibility semantics. *J. Logic Computation*, first published online August 18, 2016 doi:10.1093/logcom/exw024.

# 2015

## Textbook

1. **O. Dzagnidze**, Fourier Analysis, (Georgian) Tbilisi University Press, 274 pp.

## (ii) Papers

1. **M. Ashordia**, Antiperiodic boundary value problem for systems of linear generalized differential equations. *Mem. Differential Equations Math. Phys.* **66** (2015), 141-152.
2. **M. Ashordia** and G. Ekhvaia, On the solvability of multipoint boundary value problems for systems of nonlinear difference equations. *Mem. Differential Equations Math. Phys.* **65** (2015), 151-158.
3. **M. Ashordia** and G. Ekhvaia, On the solvability of multipoint boundary value problems for systems of nonlinear differential equations with fixed points of impulses actions. *Mem. Differential Equations Math. Phys.* **64** (2015), 143-154.
4. **M. Ashordia**, G. Ekhvaia, and N. Topuridze, On the Conti-Opial type existence and uniqueness theorems for general nonlinear boundary value problems for systems of discrete equations. *Mem. Differential Equations Math. Phys.* **64** (2015), 155-162.
5. \***M. Bakuradze**, Morava K(s)-rings of the extensions of Cp by the products of good groups under diagonal action. *Georgian Math. J.* **22** (2015), No. 4, 451-455.
6. \***G. Berikelashvili** and B. Midodashvili, Compatible convergence estimates in the method of refinement by higher-order differences. (Russian) *Differ. Uravn.* **51** (2015), No. 1, 107-115.
7. \***G. Berikelashvili** and B. Midodashvili, On increasing the convergence rate of difference solution to the third boundary value problem of elasticity theory. *Bound. Value Probl.* **2015**, 2015:226.
8. **G. Berikelashvili** and B. Midodashvili, On the improvement of convergence rate of difference scheme for one mixed boundary-value problem. *Mem. Differential Equations Math. Phys.* **65** (2015), 23-34.
9. **G. Berikelashvili**, M. M. Gupta and B. Midodashvili, On the improvement of convergence rate of difference schemes with high order differences for a convection-diffusion equation. AIP Conference Proceedings **1648** (2015), 470002-1 – 470002-4.
10. \*G. Bezhaniashvili, **N. Bezhaniashvili**, J. Harding, Modal compact Hausdorff spaces. *Journal of Logic and Computation*, 25(1), pp. 1-35, 2015.
11. \*G. Bezhaniashvili, **N. Bezhaniashvili**, J. Harding, Modal operators on compact regular frames and de Vries algebras. *Applied Categorical Structures*, 23(3), pp. 365-379, 2015.
12. \***N. Bezhaniashvili**, **D. Gabelaia**, S. Ghilardi, M. Jibladze, Admissible Bases Via Stable Canonical Rules. *Studia Logica*, pp 1-25First online: 09 January 2016.
13. \*G. Bezhaniashvili, **D. Gabelaia**, M. Jibladze, P. J. Morandi, Profinite topological spaces. *Theory and Applications of Categories*, Vol. 30, 2015, No. 53, pp 1841-1863.

14. \*G. Bezhanishvili, **N. Bezhanishvili**, J. Lucero-Bryan, Jan van Mill, S4.3 and hereditarily extremely disconnected spaces. *Georgian Mathematical Journal*, Volume 22, Issue 4 (Dec 2015), Pages 469–475.
15. \*G. Bezhanishvili, **D. Gabelaia**, J. Lucero-Bryan, Topological completeness of logics above s4. *The Journal of Symbolic Logic*, Volume 80, Issue 02, June 2015, pp 520-566.
16. \*G. Bezhanishvili, **D. Gabelaia**, J. Lucero-Bryan, Modal logics of metric spaces. *The Review of Symbolic Logic*, Volume 8, Issue 01, March 2015, pp 178-191.
17. \***N. Bezhanishvili**, S. Sourabh, Sahlqvist preservation for topological fixed-point logic. *J Logic & Computation* doi:10.1093/logcom/exv010 First published online: April 12, 2015.
18. \*B. Blankleider, **A. N. Kvinikhidze** and Z.K.Silagadze, Gauge invariant formulation of 3γ decay of particle-antiparticle bound states. *Phys. Rev. D* **92** (2015) 4, 045032.
19. Y. Boyaci, J. M. Casas, **T. Datuashvili** and E.O. Uslu, Actions in modified categories of interest with application to crossed modules. *Theory and Application of Categories* **30** (2015), No. 25, 882-908.
20. J. M. Casas, **E. Khmaladze** and N. Pacheco Rego, Non-abelian homology of Hom-Lie algebras and applicationsm. *Proc. A. Razmadze Math. Inst.* **167** (2015), 99 – 106.
21. \*L.P. Castro, **D. Kapanadze** and **E. Pesetskaya**, Effective conductivity of a composite material with stiff imperfect contact conditions. *Mathematical Methods in the Applied Sciences*, 2015 (published online).
22. **O. Chkadua**, **R. Duduchava** and **D. Kapanadze**, The screen type Dirichlet boundary value problems for anisotropic pseudo-Maxwell's equations. *Mem. Differential Equations Math. Phys.* **66** (2015), 33-43.
23. N. Danelia and **V. Kokilashvili**, Approximation of fractional derivatives of periodic functions by trigonometric polynomials and conjugate functions in variable exponent Lebesgue spaces when minimum of variable exponent equal to one. *Bull. Georgian National Academy of Sciences*, V. 9, #3, 1-5.
24. **R. Duduchava**, E. Shargorodsky, G. Tephnadze, Extension of the unit normal vector field to a hypersurface. *Georgian Math. J.* **22** (2015), 355-359.
25. **R. Duduchava** and T. Tsutsunava, Integro-differential equations of Prandtl type in the Bessel potential spaces. *Mem. Differential Equations Math. Phys.* **66** (2015), 45-64.
26. \***O. Dzagnidze**, Necessary and sufficient conditions for the  $H$ -differentiability of quaternion functions. *Georgian Math. J.* **22** (2015), No. 2, 215-218.
27. \***L. Ephremidze**, E. Lagvilava and I. Spitkovsky, Rank-deficient spectral factorization and wavelets completion problem. *Int. J. Wavelets, Multiresolution and Information Processing* **13** (2015), 240-248.
28. **L. Ephremidze** and I. Spitkovsky, Matrix spectral factorization with perturbed data. *Mem. Differential Equations Math. Phys.* **66** (2015), 65-82.
29. \***A. Гачечиладзе**, **Р. Гачечиладзе**, Односторонние контактные задачи с трением, возникающим вдоль нормали. *Дифференциальные Уравнения*, Москва, 2015.DOI: 10.1134/SO 3740641150.

30. X. García-Martínez, E. Khmaladze and M. Ladra, Non-abelian tensor product and homology of Lie superalgebras. *J. Algebra* **440** (2015), 464-488.
31. \*V. Gerdt, A. Khvedelidze and Y. Palii, Constructing the  $SU(2) \times U(1)$  orbit space for qutrit mixed states. *J. Math. Sci.* **209** (2015), No. 6, 878-889.
32. O. Glonti, V. Jaoshvili and O. Purtukhia, Hedging of European option of exotic type. *Proc. A. Razmadze Math. Inst.* **168** (2015), 25-40.
33. \*M. Heinze, G. Jorjadze and L. Megreliidze, Isometry group orbit quantization of spinning strings in  $AdS_3 \times S^3$ . *J. Phys. A* **48** (2015), 12, 125401.
34. \*M. Heinze, B. Hoare, G. Jorjadze and L. Megreliidze, Orbit method quantization of the  $AdS_2$  superparticle. *J. Phys. A* **48** (2015), 31, 315403.
35. H. Inasaridze, Smooth K-groups for monoid algebras and K-regularity. *Mathematics* **3** (2015), No. 3, 891-896, doi: 10.3390/math.3030891.
36. \*O. Jokhadze and S. Kharibegashvili, On the Cauchy and Cauchy-Darboux problems for semilinear wave equations. *Georgian Math. J.* **22** (2015), No. 1, 81-104.
37. G. Jorjadze and L. Megreliidze, Gauge invariant quantization of  $AdS_3 \times S^3$  particle dynamics. *Proc. A. Razmadze Math. Inst.* **167** (2015), 113-118.
38. \*T. Kadeishvili and S. Saneblidze, The twisted Cartesian model for the double path fibration. *Georgian Math. J.* **22** (2015), No. 4, 498-508.
39. \*T. Kahnashvili, A. Kar, G. Lavrelashvili, N. Agarwal, L. Heisenberg and A. Kosowsky, Cosmic expansion in extended quasidilaton massive gravity. *Phys. Rev. D* **91** (2015), No. 4, 041301.
40. \*D. Kapanadze, G. Mishuris and E. Pesetskaya, Improved algorithm for analytical solution of the heat conduction problem in doubly periodic 2D composite materials. *Complex Variables and Elliptic Equations* **60** (2015), 1-23.
41. \*D. Kapanadze, G. Mishuris and E. Pesetskaya, Exact solution of a nonlinear heat conduction problem in a doubly periodic 2D composite material. *Archives of Mechanics* **67** (2015), No. 2, 157-178.
42. \*D. Kapanadze, W. Misuris and E. Pesetskaya, Relationship between the effective thermal properties. *ZAMM J. Appl. Math. Mech.*, 2015 (published online).
43. S. Kharibegashvili, The existence of solutions of one nonlocal in time problem for multidimensional wave equations with power nonlinearity. *Mem. Differential Equations Math. Phys.* **66** (2015), 83-101.
44. \*S. S. Kharibegashvili and O. M. Jokhadze, The time-periodic problem for weekly nonlinear telegraph equation with oblique derivative in the boundary condition. (Russian) *Differentsial'nye Uravneniya* **51** (2015), No. 10, 1376-1392.
45. S. Kharibegashvili and O. Jokhadze, On a Zaremba type problem for nonlinear wave equations in the angular domains. *Proc. A. Razmadze Math. Inst.* **167** (2015), 130-135.
46. \*S. Kharibegashvili and B. Midodashvili, On the solvability of a problem nonlocal in time for a semilinear multidimensional wave equation. *Ukrainian Math. J.* **67** (2015), No. 1, 98-119.

47. \*A. Khvedelidze and I. Rogojin, On the geometric probability of entangled mixed states. *J. Math. Sci.* **209** (2015), No. 6, 988–1004.
48. I. Kiguradze, Solvability conditions of nonlocal problems for singular in phase variables higher order differential equations. *Bull. Georgian National Acad. Sci.* **9** (2015), No. 2, 7–12.
49. I. Kiguradze, Periodic type boundary value problems for singular in phase variables nonlinear nonautonomous differential systems. *Mem. Differential Equations Math.Phys.* **66** (2015), 153–159.
50. \*M. Koehn, G. Lavrelashvili and J.-L. Lehners, Towards a solution of the negative mode problem in quantum tunneling with gravity. *Phys. Rev. D* **92** (2015), No. 2, 023506.
51. \*V. Kokilashvili and A. Meskhi, On weighted Bernstein type Inequality in grand variable exponent Lebesgue spaces. *Math. Inequalities Appl.* **18** (2015), No.3, 991–1002
52. \*V. Kokilashvili, M. Mastylo and A. Meskhi, Two-weight norm estimates for multilinear fractional integrals in classical Lebesgue spaces. *Fract. Calc. Appl. Anal.* **18** (2015), No. 5, 1146– 1163. DOI: 10.1515/fca-2015-0066.
53. \*V. Kokilashvili, M. Mastylo and A. Meskhi, Fractional integral operators between Banach function lattices, *Nonlinear Analysis, Theory, Methods and Applications* **117** (2015) 148–158.
54. \*V. Kokilashvili, M. Mastylo and A. Meskhi, The multisublinear maximal type operators in Banach function lattices, *J. Math. Anal. Appl.* **421** (2015), No.1, 656–668.
55. V. Kokilashvili, M. Mastyło and A. Meskhi, Multilinear maximal functions and singular integrals in weighted grand Lebesgue spaces, *Proc. A. Razmadze Math. Inst.* **167** (2015), 142-150.
56. V. Kokilashvili, M. Mastylo and A. Meskhi, Multilinear fractional integrals in weighted grand Lebesgue spaces, *Proc. A. Razmadze Math. Inst.* **169** (2015), 143-153.
57. V. Kokilashvili, The inverse inequalities of approximation by trigonometric polynomials in weighted variable exponent Lebesgue spaces. *Bull. Georgian Natl. Acad. Sci.* **9** (2015), No. 1, 9-11.
58. V. Kokilashvili and V. Paatashvili, On variable exponent Hardy classes of analytic and harmonic functions, *Proc. A. Razmadze Math. Inst.* **169** (2015), 93-103.
59. V. Kokilashvili and V. Paatashvili, Riemann boundary value problem in variable exponent Smirnov class of generalized analytic functions, *Proc. A. Razmadze Math. Inst.* **169** (2015), 105-118.
60. V. Kokilashvili and V. Paatashvili, On the Occasion of Boris Khvedelidze 100<sup>th</sup> Birthday Anniversary, *Proc. A. Razmadze Math. Inst.* **169** (2015), 1- 6.
61. \*A. Kharazishvili, On the cardinalities of at-sets in a real Hilbert space. *Georgian Math. J.* **22** (2015), No. 2, 259-264.
62. \*A. Kharazishvili, Three-colorings of the Euclidean plane and associated triangles of a prescribed type. *Georgian Math. J.* **22** (2015), No. 3, 393-396.

63. \***A. Kharazishvili**, On bijective continuous images of absolute null sets. *Ukrainian Math. J.* **67** (2015), No. 7, 1134-1138.
64. **A. Kharazishvili**, On inscribed and circumscribed convex polyhedral. *Proc. A. Razmadze Math. Inst.* **167** (2015), 123-129.
65. **A. Kharazishvili**, A partition of an uncountable solvable group into three negligible subsets. *Bul. TICMI* **19** (2015), No. 1, 37-44.
66. **A. Kirtadze**, On nonmeasurability of additive functions. *Proc. A. Razmadze Math. Inst.* **167** (2015), 136-137.
67. **S. Kukujanov**, Oscillations and stability of shells of revolution, close by their form to cylindrical ones, with elastic filler, under the action of normal pressure and temperature. *Proc. A. Razmadze Math. Inst.* **167** (2015), 63-72.
68. **M. Mania** and R. Tevzadze, On the properties of dynamic value functions in the problem of optimal investment in incomplete market. *Georgian Math. J.* **22** (2015), No. 1, 111-130.
69. **M. Mania** and R. Tevzadze, On regularity of dynamic value function related to the utility maximization problem. *Proc. A. Razmadze Math. Inst.* **168** (2015), 63-77.
70. **M. Mania** and R. Tevzadze, The relation between the basic and conditional utility optimization problems. *Proc. I. Vekua Inst. Appl. Math.* **65** (2015), 8 pages.
71. A. Martsinkovsky and **D. Zangurashvili**, The stable category of a left hereditary ring. *J. Pure Appl. Algebra* **219** (2015) 4061 – 4089.
72. **B. Mesablishvili** and R. Wisbauer, Azumaya monads and comonads. *Axioms* **4** (2015), No. 1, 32-70.
73. **B. Mesablishvili**, M. Livernet and R. Wisbauer, Generalised bialgebras and entwined monads and comonads. *J. Pure Appl. Algebra* **219** (2015), No. **8**, 3263-3278.
74. \***A. Meskhi**, H. Rafeiro and M. A. Zaighum, Interpolation on variable Morrey spaces defined on quasi-metric measure spaces. *J. Functional Anal.* doi:10.1016/j.jfa.2015.11.013, Available online 4 December 2015.
75. **A. Meskhi**, Criteria for the boundedness of potential operators in grand Lebesgue spaces. *Proc. A. Razmadze Math. Inst.* **169** (2015), 119-132.
76. \***V. Paatashvili**, Smirnov classes of analytic functions with variable exponent in multiply connected Domains, *Complex Variable and Elliptic Equations*, DOI 1080/17476933.2015.1053474.
77. **V. Paatashvili**, Smirnov classes of analytic functions with variable exponent in multiply connected domains. *Bull. Georgian Natl. Acad. Sci.* **9** (2015), No. 1, 16-23.
78. **N. Partsvania**, Boundary value problems on an infinite interval for singular in phase variables two-dimensional differential systems. *Bull. Georgian Natl. Acad. Sci.* **9** (2015), No. 2, 13-18.
79. D. Pearce, **L. Uridia**, The Topology of Common Belief. In book: The Cognitive Foundations of Group Attitudes and Social Interaction, Edition: Studies in the Philosophy of Sociality Vol. 5, Chapter: The Topology of Common Belief, Editors: Andreas Herzog, Emiliano Lorini, pp.133-152.

80. **O. Purtukhia**, Martingale representation of Wiener functional. *Rep. Enlarged Sess. Seminar I. Vekua Inst. Appl. Math.* **29** (2015), 5 pages.
81. \***N. Shavlakadze**, The effective solution of two-dimensional integral-differential equations and their applications in the theory of viscoelasticity. *ZAMM. Z. Angew. Math. Mech.* **95** (2015), No.12, 1548-1557; DOI 10.1002/zamm.201400091
82. **N. Shavlakadze**, The boundary value contact problems of electroelasticity for piezo-elastic half space with elastic inclusion. *Proceedings of IV International Conference “Topical problems of continuum mechanics”*. 2015, 21-26, 491-495.
83. **Sh. Tetunashvili**, On some properties of sets of uniqueness of functional series, *Bull. Georgian Natl. Acad. Sci.* **9** (2015), No. 1, 12-15.