

LASHA EPHRE MIDZE

Curriculum Vitae

Division of Science and Mathematics
New York University Abu Dhabi
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CURRENT POSITION

Research Associate, New York University Abu Dhabi, UAE

2014-present

RESEARCH AREAS

Operator Theory, Real and Complex Analysis, Harmonic Analysis, Ergodic Theory

PATENTS

2016, "Matrix spectral factorization for data compression, filtering, wireless communications, and radar systems"; Patent No.: US 9,318,232 B2; Date: Apr. 19, 2016; Inventors: A. Ephremides (MD), G. Janashia, L. Ephremidze, and E. Lagvilava; Assignee: University of Maryland, College Park, MD

2021, "Multivariate matrix spectral factorization"; Patent No.: US 10,951,919 B2; Date: Mar. 16, 2021; Inventors: L. Ephremidze, I. Spitkovsky; Assignee New York University Abu Dhabi

Professional Membership: AMS

Programming Languages: MATLAB

EDUCATION

2003, Doctor of Sciences (Habilitation), A. Razmadze Mathematical Institute, Tbilisi, Georgia, Thesis: "*Some Problems of Fourier and Ergodic Operator Theories*".

1993, Candidate of Sciences (Ph.D.), A. Razmadze Mathematical Institute. Tbilisi, Georgia, Thesis: "*Metric properties of dynamical systems*".

1987, MSc in Mathematics with Distinction, Tbilisi State University.

PREVIOUS APPOINTMENTS

2009-2014, Associate Professor at Faculty of Exact and Natural Sciences of I. Javakhishvili Tbilisi State University, Georgia

2013-2014, Lecturer at Free University of Tbilisi, Georgia

2008-2010, Full Professor at International Black Sea University

1995-2000, 2002-2004, Lecturer at International Black Sea University

2005-2007, Japan Society for the Promotion of Science Postdoctoral Fellow, Tokai University, Japan

2004-2005, Matsumae International Foundation Fellow, Okayama University, Okayama, Japan

2000-2002, Visiting Senior Research Fellow at Prague Mathematical Institute

1993-1995, Lecturer at Georgian Technical University

1987-present, Researcher of A. Razmadze Mathematical Institute

TEACHING EXPERIENCE

2020, Division of Science and Mathematics NYUAD, Sophomore course: Linear Algebra

2016-2017, Division of Science and Mathematics, NYUAD. Freshmen course: *Calculus with Applications*, Sophomore course: *Multivariate Calculus*

2009-2014, Mathematics Department, I. Javakishvili Tbilisi State University. Freshmen course: *Calculus*; Sophomore courses: *Measure Theory and Integration, Complex Analysis*; MSc courses: *Introduction to Wavelets, Theory of Hardy Spaces* (in Georgian).

2013-14, Department of Science, Free University of Tbilisi. Freshmen course: *Linear Algebra*; Sophomore courses: *Complex Analysis, Differential Equations* (in Georgian).

1995-2000, 2002-2004, 2007-2009. International Black Sea University. Freshmen courses: *Calculus, Linear Algebra, Discrete Mathematics*; Freshmen courses: *Probability Theory, Statistics, Differential Equations*; MSc course: *Mathematical modelling* (in English).

2006-2007, Tokai University, Ph.D. courses: *Estimation Theory of Gaussian Random Processes, Wiener Processes and Stochastic Integrals* (in English).

2001, Charles University in Prague, Faculty of Mathematics and Physics, Department of Probability and Statistics. MSc Course: *Ergodic Theory and Information* (in English).

1993-1995, Georgian Technical University, Faculty of Applied Mathematics. Freshmen courses: *Mathematical Analysis, Linear Algebra*; Sophomore course: *Complex Analysis*; Junior Course: *Functional Analysis* (in Georgian).

AWARDS

1987, Gold medal of the Georgian Academy of Sciences

1986, Gold medal for the best research paper in a competition of SU university students

GRANTS

2021-2024 Horizon 2020, Call: H2020-MSCA-RISE-2020

2019-2021 Shota Rustaveli National Science Foundation grant (Contract No. FR-18-2499)

2019-2021 Shota Rustaveli National Science Foundation grant (Contract No. DI-18-118)

2013-2015 Shota Rustaveli National Science Foundation grant (Contract No. 31/47).

2012-2014 Shota Rustaveli National Science Foundation grant (Contract No. D/13-23).

2010-2012, GNSF grant/ST09/23-3-100

2008-2010, GNSF grant/ST07/3-169

2007-2008, INTAS grant Nr 06-1000017-8792

2004, CNR-NATO grant of Italy No. 217.35 S.

1997-2006, Grant No. 1.1 of the Georgian Academy of Sciences

1998-2000, 2004-2005 Grants of the President of Georgia

MEMBER OF EDITORIAL BOARD

Georgian Mathematical Journal; Transactions of A. Razmadze Mathematical Institute

ORGANIZATION OF CONFERENCES AND WORKSHOPS

2015, Georgian-Swedish Conference in Analysis and Dynamical Systems, Tbilisi, Georgia, 15-22 July
2013, IEEE First International Black Sea Conference on Communications and Networking, Batumi, Georgia, 3-5 July
2008, International Workshop in Variable Exponents and Related Topics, Tbilisi, Georgia, 2-5 Sept.
2008, Workshop in Function Spaces, Differential Operators and Nonlinear Analysis, Helsinki, 22-24 August

TALKS AT INTERNATIONAL CONFERENCES

2019, "On the perspectives of applying the Janashia-Lagvilava matrix spectral factorization algorithm in Neuroscience" -- Unified Principles of Brain Connectivity and Dynamics, BrainMode-2019, Dec. 11-14, Pokhara, Nepal
2019, "On Janashia-Lagvilava method of matrix spectral factorization" - Factorisation of matrix functions: new techniques applications, 12-16 Aug., Isaac Newton Institute for Mathematical Sciences, Cambridge, UK. <https://www.newton.ac.uk/seminar/26876/>
2017, "On multivariate matrix spectral factorization algorithm" - VIII Annual International Conference of Georgian Mathematical Union, 4-8 Sept., Batumi, Georgia (Plenary speaker).
2015, "Rank-deficient spectral factorization and wavelets completion problem", International Workshop on Operator Theory and its Applications, IWOTA-2015, 6-10 July, Tbilisi, Georgia.
2014, "New algorithms for matrix spectral factorization and wavelet construction"- The International Congress of Mathematicians, 13-21 August, Seoul, Korea.
2013, "Numerical comparison of different algorithms for construction of wavelet matrices" – IEEE First International Black Sea Conference on Communications and Networking, July 3-5, 2013, Batumi, Georgia.
2011, "Matrix spectral factorization and wavelets" – International Conference on Continuum Mechanics and Related Problems of Analysis, 9-14 September, Tbilisi, Georgia
2008, "On parameterization of compact wavelets" – FSDONA-Workshop, Helsinki, 22-24 August
2008, "On parameterization of the wavelet matrices" – Function Spaces and Application, 7-11 July, Fryeburg, Germany
2007, "A new efficient matrix spectral factorization algorithm" – SICE Annual Conference 2007, 17-20 September, Kasagawa University, Japan,
2007, "On the estimation of the convergence rate in the Janashia-Lagvilava spectral factorization algorithm" – Conference in Harmonic Analysis and Applications, 2-4 September, Hokkaido University, Japan
2007, "On the uniqueness of maximal operators" – Conference in Harmonic Analysis and Nonlinear Partial Differential Equations, 9-11 July, Kyoto University, Japan,
2007, "The John-Nirenberg inequality for ergodic systems" - Meeting of the Mathematical Society of Japan, 20-23 September, Sendai, Japan
2006, "On the uniqueness of maximal functions of Borel measures" - Meeting of the Mathematical Society of Japan, 20-23 September, Osaka, Japan
2005, "On the generalization of the Riesz-Zygmund theorem for the ergodic Hilbert transform." -

Meeting of the Mathematical Society of Japan, 27-30 March, Tokyo, Japan
2002, "On the decreasing rearrangement of the ergodic maximal function" - Spring School on Nonlinear Analysis, 17-22 July, Prague, Czech Republic
2002, "On the generalization of the Stein-Weiss theorem for the ergodic transformations" - The 26th Summer Symposium in Real Analysis, 25-29 June, Lexington, USA
2001, "A new multivariate spectral factorization algorithm" - First SIAM-EMS Conference, Applied Mathematics in our Changing World, 2-6 September, Berlin, Germany
1990, "On the ergodic maximal function" - Summer school on dynamical systems, 1-15 August, Samos, Greece.
1989, "On the convergence of Fourier series in the norm" - Function theory seminar, 22 October-9 November Banach Center, Poland
1989, "On the ergodic maximal equality" - The fifth international conference on probability theory and statistics, 26 June-1 July, Vilnius, Lithuania

IMPORTANT SEMINAR TALKS

2022, "Spectral factorization, wavelet matrices, and their applications", EPFL, Lausanne, 28 Oct.
2020, "Granger Causality and Matrix Spectral Factorization" Neuroscience Institute of Georgia State University, USA, Sept. 4, (online)
2019, "Matrix spectral factorization and wavelets" – Department of Electrical and Computer Engineering, Technical University of Munich, Germany, 30 Aug.
2015, "Matrix spectral factorization and wavelets" – Division of Science and Mathematics, New York University Abu Dhabi, 19 April
2014, "New algorithms for wavelet matrix construction" - Department of Electrical & Computer Engineering, Polytechnic Institute of New York University, 12 March
2007, "A new efficient matrix spectral factorization algorithm"- Department of Information Physics and Computing, University of Tokyo, 12 October
2007, "A new effective multidimensional spectral factorization algorithm"- Norbert Wiener Center Seminar, University of Maryland,
<http://norbertwiener.umd.edu/seminars/abstracts06-07/abstract15.html>
2007, "Spectral factorization and its applications" – Department of Electrical Engineering, Tokai University, Japan, 5 February
2006, "On factorization of positive definite matrix-functions" – Department of Mathematics, Hokkaido University, Japan, 13 February
2004, "On the ergodic maximal function" - Department of Mathematics, St. Andrews University, Scotland, UK, 27 February
2001, "A new method of factorization of positive definite matrix-functions" – Department of Mathematics, Lancaster University, UK, 13 July
2000, "Prediction theory of stationary random processes" – Department of Mathematics, University of Sussex, UK, 28 April

SHORT SCIENTIFIC VISITS

2022, Multiwave Technologies AG, Geneva, Switzerland, Oct 5-Nov 5
2022, Multiwave Technologies SAS, Marseille, France, July 5 - Aug 6
2020, Singapore Management University, Singapore, 31 Jan. (*seminar talk*)

2019, Isaac Newton Institute for Mathematical Sciences, Cambridge, UK. 5-30 Aug.
2014, Polytechnic Institute of New York University, USA, 7-15 March,
2008, Institute for Systems Research, University of Maryland, USA, 11 – 29 April
2007, Meijo University, Nagoya, Japan, 18 May (*seminar talk*)
2007, Institute for Systems Research, University of Maryland, USA, 15 February – 12 March
<http://www.ece.umd.edu/events/index.php?mode=4&id=1544>
2006, Athens Information Technology Institute, Greece, 16 June (*seminar talk*)
2004, University of Bologna, Italy, 1 May – 30 June
2004, St. Andrews University, Scotland, 15 February – 15 march
2001, Lancaster University, UK, 13 July (*seminar talk*)
2000, University of Sussex, UK, 15 April – 15 May

ADVISING EXPERIENCE

Master Thesis:

2013, Nika Salia (currently, PhD candidate at Central European University, Hungary) “*Numerical Comparison of Different Algorithms for Construction of Wavelet Matrices*”
2013, Beka Ergemlidze (currently, PhD candidate at Central European University, Hungary)
“*A new method of construction of wavelet matrices*”
2014, Giorgi Rukhaia (currently, MSc student of mathematics at University of Bonn) “*On a spectral factorization algorithm for polynomial matrix functions*”

Capstone Projects:

2013, Natalia Nebulishvili (currently, Graduate Student of Computer Science and Systems at University of Washington Tacoma) “*Maximal Functions and their Applications in Harmonic Analysis*”

REFERENCES

Professor Anthony Ephremides
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LIST OF PUBLICATIONS

1. **L. Ephremidze**, I. Spitkovsky, and A. Saatashvili, On J-unitary matrix polynomials, **Math Sci.** (2022). <https://doi.org/10.1007/s10958-022-05878-w>
2. **L. Ephremidze** and I. Spitkovsky, On multivariable matrix spectral factorization method, **J. Math. Anal. Appl.** 514 (2022), 126300. <https://doi.org/10.1016/j.jmaa.2022.126300>.
3. **L. Ephremidze** and I. Spitkovsky, On the generalization of Janashia-Lagvilava method for arbitrary fields, **Georgian Math. J.** 29 (2022), 353-362. <https://doi.org/10.1515/gmj-2021-2140>
4. **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
5. **L. Ephremidze** and I. Spitkovsky, *On explicit Wiener-Hopf factorization of 2x2 matrices in a vicinity of a given matrix*, 2020, **Proceedings of the Royal Society, A** 476: 20200027.
6. **L. Ephremidze**, E. Shargorodsky, and I. Spitkovsky, *Quantitative results on continuity of the spectral factorization mapping*, **J. Lond. Math. Soc. (2)**, 101 (2020) 60-81.
7. **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), 31-36.
8. **L. Ephremidze** and I. Spitkovsky, On a generalization of Smirnov's theorem with some applications, **Georgian Math. J.**, 25 (2018), 217-220, DOI: <https://doi.org/10.1515/gmj-2018-0021>
9. **L. Ephremidze**, F. Saied, and I. Spitkovsky, *On the algorithmization of Janashia-Lagvilava matrix spectral factorization method*, **IEEE Trans. Inform. Theory**, 64 (2018), 728-737 DOI: 10.1109/TIT.2017.2772877
10. **L. Ephremidze**, I. Selesnick, and I. Spitkovsky, *On non-optimal spectral factorizations*, **Georgian Math. J.**, 24 (2017), 517-522. DOI: <https://doi.org/10.1515/gmj-2017-0020>
11. **L. Ephremidze**, W. H. Gerstacker, and I. Spitkovsky, *On Robinson's Energy Delay Theorem*, **Trans. A. Razmadze Math. Inst.**, 171 (2017), 16-23.
12. **L. Ephremidze**, E. Shargorodsky, and I. Spitkovsky, *Quantitative results on continuity of the spectral factorization mapping in the scalar case*, **Bol. Soc. Mat. Mex.** 22 (2016), 517-527.
13. **L. Ephremidze** and I. Spitkovsky, *Matrix Spectral Factorization with Perturbed Data*, **Mem. Differential Equations Math. Phys.** 66 (2015), 65-82.
14. **L. Ephremidze**, E. Lagvilava, and I. Spitkovsky, *Rank-Deficient Spectral Factorization and Wavelets Completion Problem*, **Int. J. Wavelets Multiresolut. Inf. Process.**, 13 (2015), 240-248.
15. **L. Ephremidze**, N. Salia, I. Spitkovsky, *Some aspects of a novel matrix spectral factorization algorithm*, **Proc. A. Razmadze Math. Inst.** 166 (2014), 49-60.

16. **L. Ephremidze**, *An elementary proof of the polynomial matrix spectral factorization theorem*, **Proc. Roy. Soc, Edinburgh Sect. A**, 144 (2014), 747–751.
17. **L. Ephremidze** and E. Lagvilava, *On compact wavelet matrices of rank m and of order and degree N* , **J. Fourier Anal. Appl.** 20 (2014), 401–420.
18. **L. Ephremidze**, A. Gamkrelidze and E. Lagvilava, *An approximation of Daubechies wavelet matrices by perfect reconstruction filter banks with rational coefficients*, **Adv. Comput. Math.** 38 (2013), 147–158.
19. **L. Ephremidze**, G. Janashia, and E. Lagvilava, *Matrix spectral factorization and wavelets*, **Journal of Mathematical Sciences**, 195 (2013), 445–454.
20. **L. Ephremidze** and I. Spitkovsky, *A remark on a polynomial matrix factorization theorem*, **Georgian Math. J.** 19 (2012), 489–495.
21. **L. Ephremidze**, G. Janashia, and E. Lagvilava, *On approximate spectral factorization of matrix functions*, **J. Fourier Anal. Appl.** 17 (2011), 976–990.
22. G. Janashia, E. Lagvilava, and **L. Ephremidze**, *A new method of matrix spectral factorization*, **IEEE Trans. Inform. Theory**, 57 (2011), 2318–2326.
23. **L. Ephremidze**, *On the Uniqueness Property of Various Maximal Operators*, **Research Institute of Math. Sci. (RIMS)**, Kyoto, B22, (2010), 137–144.
24. **L. Ephremidze** and E. Lagvilava, *Remark on outer analytic matrix-functions*, **Proc. A. Razmadze Math. Inst.** 152 (2010), 29–32.
25. **L. Ephremidze**, G. Janashia, and E. Lagvilava, *A simple proof of matrix-valued Fejer-Riesz theorem*, **J. Fourier Anal. Appl.** 15 (2009), 124–127.
26. **L. Ephremidze** and N. Fujii, *The John-Nirenberg inequality for ergodic systems*, **Far East J. Dyn. Syst.** 11 (2009), 49–56.
27. **L. Ephremidze**, V. Kokilashvili, and S.G. Samko, *Fractional, maximal and singular operators in variable exponent Lorentz spaces*, **Fractional Calculus and Applied Analysis** 11 (2008), 407–420.
28. **L. Ephremidze** and N. Fujii, *On the uniqueness of the one-sided maximal functions of Borel measures*, **J. Math. Soc. Japan**, 60 (2008), 695–717.
29. **L. Ephremidze**, G. Janashia, and E. Lagvilava, *An analytic proof of the matrix spectral factorization theorem*, **Georgian Math. J.** 15 (2008), 241–249.
30. **L. Ephremidze**, N. Fujii, and Y. Terasawa, *The Riesz “rising sun” lemma for arbitrary Borel measures with some applications* **J. Funct. Spaces Appl.** 5 (2007), 319–331.
31. **L. Ephremidze** and R. Sato, *On the generalization of the Riesz-Zygmund theorem for the ergodic Hilbert transform*, **Ergodic Theory Dynam. Systems**, 27 (2007), 113–122.

32. L. Ephremidze and R. Sato, *A weighted ergodic maximal equality for nonsingular semiflows*, **Colloq. Math.** 103 (2005), 207-213.
33. L. Ephremidze, *On the uniqueness of the two-sided ergodic maximal function*, **Georgian Math. J.** 12 (2005), 45-52
34. L. Ephremidze, G. Janashia, and E. Lagvilava, *A new computational algorithm of spectral factorization for polynomial matrix functions*, **Proc. A. Razmadze Math. Inst.** 136 (2004), 41-46.
35. L. Ephremidze, *The Stein-Weiss theorem for the ergodic Hilbert transform*, **Studia Math.** 165 (2004), 61-71.
36. L. Ephremidze, *A new proof of the Ergodic Maximal Equality*, **Real Anal. Exchange**, 29 (2003/04), 409-411.
37. L. Ephremidze, *The generalization of Stein-Weiss Theorem for the ergodic Hilbert transform*, **Studia Math.** 155 (2003), 67-75.
38. L. Ephremidze, *On the Ergodic Maximal Equality*, **Proc. A. Razmadze Math. Inst.** 132 (2003), 89-92.
39. L. Ephremidze, *On the uniqueness of the ergodic maximal function*, **Fund. Math.** 174 (2002), 217- 228.
40. L. Ephremidze, *On the uniqueness of maximal operators for ergodic flows*, **Rev. Mat. Complut.** 15 (2002), 75-84.
41. L. Ephremidze, *The rearrangement inequality for the ergodic maximal function*, **Georgian Math. J.** 8 (2001), 727-732.
42. G. Janashia, E. Lagvilava, and L. Ephremidze, *On approximate factorization of positive definite matrix functions*, **Uspekhi Mat. Nauk**, 54 (1999), 161-162 (in Russian). Translated as **Russian Math. Surveys**, 54 (1999), 1246-1247.
43. L. Ephremidze, *On approximate factorization of positive definite matrix functions of second order*, **Proc. A. Razmadze Math. Inst.** 120 (1999), 49-56.
44. L. Ephremidze, *On reverse weak $(1,1)$ type inequalities for the maximal operators with respect to arbitrary measures*, **Real Anal. Exchange**, 24 (1998/9), No. 2, 761-764.
45. L. Ephremidze, G. Janashia, and E. Lagvilava, *On the factorization of unitary matrix-functions*, **Proc. A. Razmadze Math. Inst.** 116 (1998), 101-106.
46. L. Ephremidze, *On the integrability of the ergodic Hilbert transform for a class of functions with equal absolute values*, **Georgian Math. J.** 5 (1998), 101-106.
47. L. Ephremidze, *On approximate factorization of the spectral measures of stationary processes*, **Proc. A. Razmadze Math. Inst. Georgian Acad. Sci.** 114 (1997), 35-38.

48. **L. Ephremidze**, *Uniqueness theorem for maximal functions*, *Georgian Math. J.* 3 (1996), 49-52.
49. **L. Ephremidze**, *On a relationship between the integrabilities of various maximal functions*, *Georgian Math. J.* 2 (1995), 9-20.
50. **L. Ephremidze**, *On the integrability of the ergodic maximal function*, *Proc. A. Razmadze Math. Inst. Georgian Acad. Sci.* 102 (1993), 29-40.
51. **L. Ephremidze**, *A remark on a theorem of Atkinson*, *Proc. A. Razmadze Math. Inst. Georgian Acad. Sci.* 101 (1992), 39-45.
52. **L. Ephremidze**, *On the distribution function of the majorant of ergodic means*, *Studia Math.* 103 (1992), 1-15.
53. **L. Ephremidze**, *On the majorant of ergodic means (the continuous case)*, *Trudy Tbiliss. Mat. Inst. Razmadze Akad. Nauk Gruz. SSR* 98 (1990), 112-124 (in Russian).
54. **L. Ephremidze**, *On the majorant of ergodic means*, *Uspekhi Mat. Nauk*, 45 (1990), No. 2 (272), 223-224 (in Russian). Translated as *Russian Math. Surveys*, 45, (1990), 209-211.
55. **L. Ephremidze**, *On the convergence of Fourier-Walsh series in the space L* , *Trudy Tbiliss. Mat. Inst. Razmadze Akad. Nauk Gruz. SSR*, 95 (1989), 71-80 (in Russian).
56. **L. Ephremidze**, *On the convergence of Fourier series in L* , *Trudy Tbiliss. Mat. Inst. Razmadze Akad. Nauk Gruz. SSR*, 89 (1988), 83-94 (in Russian).

Conference Papers

57. **L. Ephremidze** and I. Spitkovsky, *An algorithm for J -spectral factorization of certain matrix functions*, 2021, 60th IEEE Conference on Decision and Control (CDC), 2021, pp. 5820-5825, doi: 10.1109/CDC45484.2021.9683123.
58. V. Baramidze, **L. Ephremidze**, and N. Tsimakuridze, *On numerical methods of scalar spectral factorization*, Tbilisi International Conference on Computer Science and Applied Mathematics, March 21-23, 2015, 4 pages, Tbilisi, Georgia (USB Disk).
59. N. Salia, A. Gamkrelidze, and **L. Ephremidze**, *Numerical comparison of different algorithms for construction of wavelet matrices*, IEEE First International Black Sea Conference on Communications and Networking, July 3-5, 2013, Batumi, Georgia, pp. 177-180, (USB Disk).
60. **L. Ephremidze**, G. Janashia, and E. Lagvilava, *Matrix spectral factorization and wavelets*, Proc. Int. Conference, "Modern Algebra and its Applications", Sept.19-25, 2011, Batumi, Georgia, vol.2, pp. 15-26.

61. **L. Ephremidze** and N. Fujii, *On the estimation of the convergence rate in the Janashia-Lagvilava spectral factorization algorithm*, Proceedings of the Harmonic Analysis and its Applications at Sapporo 2007, Sept. 2-4, Hokkaido University, pp. 24-32.
62. **L. Ephremidze**, G. Janashia, and E. Lagvilava, *A new efficient matrix spectral factorization algorithm*, SICE Annual Conference 2007, Sept. 17-20, Kagawa University, Japan, pp. 20-24 (CD-ROM).

Abstracts and Short Communications

63. **L. Ephremidze**, T. J. Sargent, and I. Spitkovsky, *Wiener-Granger causality conjecture on sampling*, UAE Math Day 2019, Book of Abstracts, p. 51.
64. **L. Ephremidze** and I. Spitkovsky, *On multivariable matrix spectral factorization algorithm*, VIII Annual International Conference of Georgian Mathematical Union, Book of Abstracts, 2017, p. 36.
65. **L. Ephremidze** and N. Salia, *Some computational aspects of novel matrix spectral factorization algorithm*, Caucasian Mathematics Conference, Tbilisi, 2014, Book of Abstracts, p. 78.
66. **L. Ephremidze**, G. Janashia, V. Jandieri, and E. Lagvilava, *New algorithms for matrix spectral factorization and wavelet construction*, International Congress of Mathematicians, Seoul, 2014, Abstracts of talks, p. 370.
67. V. Baramidze, **L. Ephremidze**, C. Mert, and N. Salia, *Application of a displacement structure for acceleration of novel matrix spectral factorization algorithm*, Journal of Technical Science and Technologies, 3 (2014), 25-29.
68. **L. Ephremidze**, G. Janashia, and E. Lagvilava, *On spectral factorization of matrix functions*, Rep. Sem. Appl. Math. Inst. 25 (2011), 34-38.
69. **L. Ephremidze** and E. Lagvilava, *On parametrization of compact wavelet matrices*, Bull. Georgian Acad. Sci. 2(4) (2008), 23-28.
70. **L. Ephremidze**, V.M. Kokilashvili, Y.E. Yildirim, *On the inverse inequalities for trigonometric polynomial approximations in weighted Lorentz spaces*, Proc. A. Razmadze Math. Inst. 144 (2007), 132-136.
71. **L. Ephremidze** and N. Fujii, *The John-Nirenberg inequality for ergodic systems*, Annual Meeting of Mathematical Society of Japan, Sendai, September, 2007, Session of real analysis, Abstracts of talks, 7-8.
72. **L. Ephremidze** and N. Fujii, *On the generalizations of the Riesz "rising sun" lemma*, Real Analysis Symposium, October 27-29, 2006, Hirosaki University Press, 65-68.

73. **L. Ephremidze** and N. Fujii, *On the uniqueness of maximal functions of Borel measures*, Annual Meeting of Mathematical Society of Japan, Osaka, Sept. 2006, Session of real analysis, Abstracts of talks, 11-12.
74. **L. Ephremidze** and T. Sobukawa, *On the boundedness of the ergodic Hilbert transform in Lorentz spaces*, Proc. A. Razmadze Math. Inst. 140 (2006), 160-161.
75. **L. Ephremidze** and R. Sato *On the generalization of the Riesz-Zygmund theorem for the ergodic Hilbert transform*, Annual Meeting of Mathematical Society of Japan, Tokyo, March 2005, Session of real analysis, Abstracts of talks, 23-24.
76. **L. Ephremidze**, *On a relationship between the integrabilities of various ergodic maximal functions*, Proc. A. Razmadze Math. Inst. 132 (2003), 141-142.
77. **L. Ephremidze**, G. Janashia, and E. Lagvilava, *A new multivariate spectral factorization algorithm*, First SIAM-EMS Conference "Applied Mathematics in our Changing World", Abstracts, Berlin, 2001, p.61.
78. **L. Ephremidze**, *On reverse weak (1.1) inequalities for the maximal operators with respect to arbitrary measures*, Proc. A. Razmadze Math. Inst. 117 (1998), 119-120.
79. **L. Ephremidze**, *On a relationship between the integrabilities of various maximal functions*, Rep. Sem. Appl. Math. Inst. 9 (1994), No. 1-3, 22-23.
80. **L. Ephremidze**, *A new proof of a theorem of Atkinson*, Rep. Sem. Appl. Math. Inst. 7 (1992), 63-64.
81. **L. Ephremidze**, *On the integrability of the ergodic maximal function*, Soobshch. Akad. Nauk Gruz. SSR 139 (1990), No. 1, 49-51.
82. **L. Ephremidze**, *On the distribution function of the majorant of ergodic means*, Seminar Inst. Prikl. Mat. Tbilis. Univ. 3 (1988), No. 2, 89-92 (in Russian).
83. **L. Ephremidze**, *On the convergence of Fourier-Walsh series in the space L* , Soobshch. Acad. Nauk. Gruz. SSR, 130 (1988), No. 2, 249-251 (in Russian).
84. **L. Ephremidze**, *On the convergence of Fourier series in the space L* , Soobshch. Acad. Nauk. Gruz. SSR, 126 (1988), No.3, 481-483 (in Russian).