

2022, September

**CV OF MICHAEL MEGRELISHVILI
BAR-ILAN UNIVERSITY**

PRESENT POSITION

2003 - present Professor, Department of Mathematics, Bar-Ilan University

Email: megereli@math.biu.ac.il

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RECENT CURRENT AND PLANNED RESEARCH

Topological Dynamics. Topological groups. Representations of dynamical systems on Banach spaces. Transformation (semi)groups in Topology and Functional Analysis.

RESEARCH GRANTS

- 2019-2023 **ISF (Israel Science Foundation)** Amount: 840000 Shekel
Title: *"Tame dynamical systems and related structures"*
(with E. Glasner (Tel Aviv University))
- 2013-2018 **ISF (Israel Science Foundation)** Amount: 624000 Shekel
Title: *"Representations of dynamical systems on Banach spaces"*
(with E. Glasner (Tel Aviv University))
- 2007-2011 **BSF (USA-Israel Binational Science Foundation)** 33200 USD
Title: *"Dynamical systems and topological properties of enveloping semigroups"*
(with E. Glasner (Tel Aviv University) and V.V. Uspenskij (Ohio University))
- 2002-2005 **ISF (Israel Science Foundation)** Amount: 213000 Shekel
Title: *"Representations of dynamical systems and fragmentability"*
- 1992-1996 **IMS (Israel Ministry of Sciences)** Amount: 132000 Shekel
Title: *"Topology of G-spaces"*.
(with E. Merzbach (Bar-Ilan University))

RESEARCH SUPERVISION

Ph.D. students:

- Matan Komisarchik (2020 - active)
- Menachem Shlossberg (2008 - 2014)
- Luie Polev (2011 - 2017)
- Eduard Kontorovich (started 2008. In 2013 he quit his Ph.D. studies. We published a joint article)

- Tzvi Scarr (1997-2002) [main supervisor Prof. Hillel Furstenberg]

M.Sc. students:

- Matan Komisarchik (2014 - 2016)
- Menachem Shlossberg (2005-2007)
- Eduard Kontorovich (2005-2007)
- Leonid Gugel (2005-2007)

EDUCATION

- 1987 Ph.D. in Mathematics
Thesis: *"Uniformity and topological transformation groups"*
Under supervision of Prof. A. Elashvili
(Math. Inst. of the Georgian Ac. of Sc.)
and Prof. Yu. M. Smirnov (Moscow State University).
- 1982-1986 Ph.D. studies, Mathematical Institute of the Georgian Academy
of Sciences, Dept. of Algebra and Topology.
- 1976-1981 M.Sc.,
Thesis: *"Homogenization of topological spaces"*
Under supervision of Prof. A. Elashvili
Mathematics and Mechanics Department, Tbilisi State University.

ACADEMIC POSITIONS

- 2003-present Associate Professor, Bar-Ilan University, KAMEA researcher
(Israeli State program for absorption of immigrant scientists)
- 1999-2002 Senior researcher and lecturer (Bar-Ilan University)
- 1991-1999 Researcher and Lecturer (Bar-Ilan University)
- 1985-1991 Senior Researcher (Mathem. Inst., Georgian Ac. of Sciences, Tbilisi)

ADVISORS EDITOR

DE GRUYTER, Topological Algebra and its applications (online journal)

REFEREEING FOR JOURNALS:

Topology and its Applications, Mathematische Annalen, Semigroup Forum, l'Enseignement
Mathematique, Topology Proceedings, Georgian Math. Journal, Russian Math. Notes,
Pure and Applied Algebra, J. Math. Soc. Japan.

TEACHING EXPERIENCE:

- Bar-Ilan University 1992–present
- Holon Institute of Technology 2016 - 2019
- Ashkelon College 1997–2008
- Ariel College 1996–2003
- The College of Management, Rishon-Lezion 1995–1997
- Tbilisi Mathematical Institute 1985-1990
- Tbilisi State University 1983-1984

COURSES TAUGHT

Topology 1, 2

Linear Algebra

Calculus 1, 2

Abstract Algebra 1

Introduction to Group Theory

Ring Theory

Algebraic Structures

Set Theory

Discrete Mathematics

Seminars: *Dynamical Systems, Pontryagin duality, Topological groups, Topology and Functional Analysis*

PERSONAL DATA

Born 28/11/1959, in Georgia Republic (former USSR). Israeli citizen since 1991.

Married. Two children, two grandchildren.

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Tel.: 054-7845344 (mobile), 03-5318864 (Bar-Ilan Un.), Office No. 119, Dep. of Math.

Selected conference and seminar talks

- (1) Georgian Mathematical Union XII Annual International Conference, 29 August - 03 September 2022, Batumi, Georgia. Title: Orderable groups and semigroup compactifications.
- (2) Toposym 2022, Prague Symposia on General Topology and its Relations to Modern Analysis and Algebra, July 25–29, 2022, Prague, Czech Republic. Title: Orderable groups and semigroup compactifications.
- (3) 36th Summer Topology Conference, July 18-22, 2022. University of Vienna, Austria. Title: Topological group actions by group automorphisms and Banach representations.
- (4) St. Petersburg Dep. of Steklov Mathematical Institute of Russian Academy of Sciences, Russia, August, 2019. Title: *Group actions on treelike compact spaces* (contributed talk)
- (5) Interdisciplinary Colloquium in Topology and its Applications, Vigo, Spain, June, 2019. Title: *Group actions on treelike structures* (contributed talk)
- (6) Dynamical Methods in Algebra, Geometry and Topology, 4–6t July 2018, Udine, Italy. Title: *Generalized amenability of topological groups and Banach representations* (invited talk)
- (7) Structure and dynamics of Polish groups conference, Lausanne, Switzerland, 19 – 23 March 2018. Title: *Generalized (extremal) amenability of topological groups and circular orders* (invited talk)
- (8) The International Conference in Functional Analysis dedicated to the 125th anniversary of Stefan Banach, Lviv, Ukraine, 18–23 September, 2017. Title: *Banach representations of topological groups and dynamical systems* (plenary talk)
- (9) Banach Algebras and Applications, 03-11 July, 2017, Oulu, Finland. Title: *Tame functions on topological groups and (generalized) extreme amenability* (invited talk).
- (10) Analysis Seminar, Bar-Ilan University, January 2017, Title: *Tame dynamical systems*
- (11) The Sixth Visegrad Conference Dynamical Systems, Prague, Czech Republic, July 2015. Title: *Tame functions and symbolic dynamical systems* (contributed talk)
- (12) When Topological Dynamics Meets Model Theory, Marseille, France, June 29–July 3, 2015. Title: *Order, tame systems and topological groups* (invited talk)
- (13) Descriptive Set Theory In Paris, December 2014. Title: Eventual nonsensitivity, tameness and topological groups (invited talk)
- (14) Minicourse: Banach representations of dynamical systems, Warsaw, Math. Inst. of Polish Ac. of Sciences, April 7–11, 2014. Video material and lecture notes are available at <https://u.math.biu.ac.il/~megere/seminar.html>.
- (15) IX Iberoamerican Conference on Topology and its Applications, June, 2014, Almeria, Spain. Title: *Topological groups, order preserving actions and Rosenthal Banach spaces* (invited talk)

- (16) Interactions between Logic, Topological structures and Banach spaces theory, Eilat, May 2013
(Title: Enveloping semigroups of Rosenthal Banach spaces (contributed talk))
- (17) Workshop on set theoretic methods in compact spaces and Banach spaces, Warsaw, April 2013
(contributed talk) title: Enveloping semigroups of Rosenthal Banach spaces.
- (18) Measurable and Topological dynamics and related topics, Huangshan, China, June 2011 (invited talk) title: On fixed point theorems and nonsensitivity
- (19) Summer Conference on General Topology and its Applications, CUNY, New York, July 2011
(contributed talk) title: On fixed point theorems and nonsensitivity of dynamical systems
- (20) II International Conference of Georgian Mathematical Union, Batumi, September, 2011
(contributed talk) title: On Fixed Point Theorems and Nonsensitivity of Dynamical Systems
- (21) Algebra meets Topology, Barcelona July, 2010
(Keynote Speaker) title: Minimality properties in topological groups
- (22) 22nd Summer conference on topology and its applications, Universidad Jaume I de Castellon, July, 2007
(invited talk) title: Fragmentability in topology and dynamics
- (23) International Conference on Topology and its Applications June 2006, Aegion, Greece
(contributed talk) title: Every topological group is a group retract of a minimal group
- (24) Summer Conference on Topology and its Applications, July 2006 Statesboro, GA, USA
(invited talk) title: Compactifications of Semigroups and Semigroup Actions
- (25) Workshop on the Urysohn space, May 2006, Beer-Sheva
(contributed talk) title: Globalization of Partial Actions on Topological and Metric Spaces
- (26) Workshop on Ergodic Theory and Dynamical Systems, Szklarska-Poreba, Poland, June 2006
(contributed talk) title: Reflexively but not Hilbert representable compact flows
- (27) The Visegrad Conference, Dynamical Systems, Prague July 2005
(contributed talk) title: Hereditarily non-sensitive dynamical systems
- (28) International Workshop in Topological Groups: Pamplona, August 2005
(keynote speaker) title: Some new algebras of functions on topological groups
- (29) Canadian Mathematical Society, CMS/CAIMS Summer 2004 Meeting, Dalhousie University, Halifax
(contributed talk) title: Relatively minimal subgroups.
- (30) IMU Functional Analysis Meeting, Yaki Sternfeld Memorial Conference, Technion, May 2002
(contributed talk) title: Reflexively and unitarily representable topological groups.

- (31) "Summer" Conference on Topology and Applications, July 1-4, Auckland, New Zealand
(invited talk) title: Group actions on duals of Asplund spaces
- (32) Ninth Prague Topological Symposium, August 2001, Prague, Czech Republic
(invited talk) title: Fragmentability and representations of flows

PUBLICATIONS

REFERENCES

- (66) M. Megrelishvili, *Topological group actions by group automorphisms and Banach representations*, ArXiv:2110.01386.
- (65) M. Megrelishvili and M. Komisarchik, *Tameness and Rosenthal type locally convex spaces*. ArXiv:2203.02368.
- (64) M. Megrelishvili and M. Shlossberg, *Minimality properties of some topological matrix groups*, ArXiv:1912.12088, *Topology and Appl.* (to appear).
- (63) M. Megrelishvili, *Orderable groups and semigroup compactifications*, 2022, arXiv:2112.14615, *Monatsch. Math.* (to appear), DOI 10.1007/s00605-022-01787-x.
- (62) M. Megrelishvili, *Maximal equivariant compactifications*, 2022, arXiv:2201.13426, *Topology and Appl.* (to appear).
- (61) E. Glasner and M. Megrelishvili, *Todorcevic' Trichotomy and a hierarchy in the class of tame dynamical systems*, arXiv:2011.04376, *Transactions of the Amer. Math. Soc.* 375 (2022), 4513–4548.
- (60) T. Ibarlucia and M. Megrelishvili, *Maximal equivariant compactification of the Urysohn spaces and other metric structures*, *Advances in Math.* v. 380, 2021, 107599.
- (59) E. Glasner and M. Megrelishvili, *Circular orders, ultrahomogeneity and topological groups*, ArXiv:1803.06583. AMS Contemporary Mathematics book series volume "Topology, Geometry, and Dynamics: Rokhlin - 100", *Contemp. Math.* **77**, 133—154 (2021).
- (58) M. Megrelishvili, *Median pretrees and functions of bounded variation*, *Topology and Applications* 285 (2020).
- (57) E. Glasner and M. Megrelishvili, *Group actions on treelike compact spaces*, *Science China Math.* 62 (2019).
- (56) M. Megrelishvili, *Tame functionals on Banach algebras*, in: *Banach algebras and Applications*, Editor in Chief M. Mustermann und M. Maier, Volume 5/31, De Gruyeter, 2019.
- (55) E. Glasner and M. Megrelishvili, *More on tame dynamical systems*, in: *Lecture Notes Math.* vol. 2013, *Ergodic Theory and Dynamical Systems in their Interactions with Arithmetics and Combinatorics*, Eds.: S. Ferenczi, J. Kulaga-Przymus, M. Lemanczyk, Springer, 2018, pp. 351–392.
- (54) E. Glasner and M. Megrelishvili, *Circularly ordered dynamical systems*, *Monatshefte für Mathematik*, 185 (2018), 415–441.
- (53) M. Megrelishvili, *A note about topological group c_0* , *Axioms*-372065, 2018.
- (52) M. Megrelishvili, L. Plev and M. Shlossberg, *Minimality of the semidirect products*, *Topology Proceedings*, 49 (2017), 199–214.
- (51) M. Megrelishvili, *A note on tameness of families having bounded variation*, *Topology and Applications*, 217 (2017), 20–30.
- (50) E. Glasner and M. Megrelishvili, *Eventual nonsensitivity and tame dynamical systems*, 2016, Preprint. ArXiv: 1405.2588.

- (49) M. Megrelishvili and M. Shlossberg, *Non-archimedean transportation problems and Kantorovich ultra-norms*, Arxiv: 1504.06301. *P-Adic Numbers, Ultrametric Analysis, and Applications*, **8** (2016), 125–148.
- (48) M. Megrelishvili and L. Polev, *Order and minimality of some topological groups*. Arxiv: 1501.03410. *Topology and Appl.* **201** (2016), 131–144.
- (47) E. Glasner and M. Megrelishvili, *Representations of dynamical systems on Banach spaces*. In: *Recent Progress in General Topology III*, Springer, Atlantis Press, 2014.
<http://www.springer.com/mathematics/geometry/book/978-94-6239-023-2>
- (46) D. Dikranjan and M. Megrelishvili, *Minimality properties in topological groups*. In: *Recent Progress in General Topology III*, Springer, Atlantis Press, 2014.
<http://www.springer.com/mathematics/geometry/book/978-94-6239-023-2>
- (45) M. Megrelishvili and M. Shlossberg, *Free non-archimedean topological groups*, *Comm. Math. Univ. Carolinae* 54:2, 2013, 273–312.
- (44) E. Glasner and M. Megrelishvili, *Banach representations and affine compactifications of dynamical systems*. *Asymptotic Geometric Analysis. Proceedings of the Fall 2010 Fields Institute Thematic Program*. (Monika Ludwig, Vitali Milman, Vladimir Pestov, Nicole Tomczak-Jaegermann, editors), Fields Institute Proceedings, Springer-Verlag, 2013.
- (43) E. Glasner and M. Megrelishvili, *Representations of dynamical systems on Banach spaces not containing l_1* , *Transactions of the Amer. Math. Soc.* **364** (2012), 6395–6424.
- (42) E. Glasner and M. Megrelishvili, *On fixed point theorems and nonsensitivity*, *Israel Journal of Math.* **190** (2012), 289–305.
- (41) M. Megrelishvili and M. Shlossberg, *Notes on non-archimedean topological groups*, *Comm. Math. Univ. Carol.* **159** (2012), 2497–2505.
- (40) D. Dikranjan and M. Megrelishvili, *Relative minimality and co-minimality of subgroups in topological groups*, *Topology and Appl.* **157** (2010), 62–76.
- (39) L. Google and M. Megrelishvili, *Semigroup actions: proximities, compactifications and normality*, *Topology Proc.*, **35** (2010) 37–71.
- (38) E. Glasner, M. Megrelishvili and V.V. Uspenskij, *On metrizable enveloping semigroups*, *Israel Journal of Math.*, **164** (2008), 317–332.
- (37) E. Kontorovich and M. Megrelishvili, *A note on sensitivity of semigroup actions*, *Semigroup Forum*, **76** (2008), no. 1, 113–141.
- (36) M. Megrelishvili, *Reflexively but not Hilbert representable compact flows and semitopological semigroups*, *Colloquium Math.*, **110** (2008), no. 2, 383–407.
- (35) M. Megrelishvili, *Every topological group is a group retract of a minimal group*, *Topology and Appl.*, **155** (2008), 2105–2127.
- (34) E. Glasner and M. Megrelishvili, *New algebras of functions on topological groups arising from actions*, *Fundamenta Math.*, **201** (2008), 1–51.
- (33) M. Megrelishvili, *Topological transformation groups: selected topics*. Survey paper in: *Open Problems in Topology II* (Elliott Pearl, editor), Elsevier Science, 2007, pp. 423–438.
- (32) M. Megrelishvili, *Compactifications of Semigroups and Semigroup Actions*, *Topology Proc.*, **31**, no 2 (2007) pp. 611–650.
- (31) E. Glasner and M. Megrelishvili, *Linear representations of hereditarily non-sensitive dynamical systems*, *Colloquium Math.*, **104** (2006), no.2, 223–283.

- (30) M. Megrelishvili and L. Schroder, *Globalization of Confluent Partial Actions on Topological and Metric Spaces*, *Topology and Appl.*, **145** (2004), 119–145.
- (29) M. Megrelishvili, *Generalized Heisenberg groups and Shtern's question*, *Georgian Mathematical Journal*, **11** (2004), number 4, 775–782.
- (28) M. Megrelishvili, *Fragmentability and representations of flows*, *Topology Proc.*, **27:2** (2003), 497–544.
- (27) M. Megrelishvili, *Reflexively but not unitarily representable topological groups*, *Topology Proc.*, **25** (2002), 615–625.
- (26) M. Megrelishvili, *Every semitopological semigroup compactification of the group $H_+[0, 1]$ is trivial*, *Semigroup Forum*, **63:3** (2001), 357–370. AMS MR 2002g: 54039.
- (25) M. Megrelishvili, V. Pestov and V. Uspenskij, *A Note on the precompactness of weakly almost periodic groups*, In: "Nuclear groups and Lie groups", *Research and Exposition in Math. series*, vol. 24, Heldermann Verlag, 2001, 209–216. E-print: <http://front.math.ucdavis.edu/math.GN/0011152>. MR 2002g: 22007.
- (24) M. Megrelishvili, *Operator topologies and reflexive representability*, In: "Nuclear groups and Lie groups", *Research and Exposition in Math. series*, **24**, Heldermann Verlag, 2001, 197–208. MR 2002m:46027.
- (23) M. Megrelishvili and T. Scarr, *The equivariant universality and couniversality of the Cantor cube*, *Fundamenta Math.* **167** (2001), 269–275. MR 2002b: 54039.
- (22) M. Megrelishvili, *Groupoid preactions by partial homeomorphisms and homogenizations*, In: *Categorical Methods in Algebra and Topology*, *CatMAT 2000*, *Mathematik-Arbeitspapiere* **54** (ed.: H. Herrlich and H. Porst), 2000, 279–292.
- (21) M. Megrelishvili, *G-Minimal Topological Groups*, In: *Abelian Groups, Module Theory and Topology*, *Lecture Notes in Pure and Applied Algebra*, Marcel Dekker, **201** (1998), 289–300. MR 99j: 22002.
- (20) M. Megrelishvili and T. Scarr, *Constructing Tychonoff G-Spaces Which Are Not G-Tychonoff*, *Topology and its Applications*, **86** (1998), 69–81. MR 99g: 54034.
- (19) M. Megrelishvili, *Fragmentability and continuity of semigroup actions*, *Semigroup Forum*, **57** (1998), 101–126. MR 99c: 54053.
- (18) M. Megrelishvili, *Eberlein groups and compact semitopological semigroups*, preprint, Bar-Ilan University, 1998.
- (17) M. Megrelishvili, P. Nickolas and V. Pestov, *Uniformities And Uniformly Continuous Functions On Locally Connected Groups*, *Bull. Austral. Math. Society*, **56** (1997), 279–283. MR 99e: 22005.
- (16) M. Megrelishvili, *Minimal Non-Totally Minimal Topological Rings*, *Rendiconti del Seminario Matematico della Universita di Padova*, **97** (1997), 73–79. MR 98k: 16063.
- (15) M. Megrelishvili, *Free Topological G-Groups Over Semigroup Actions*, *Annals of the New York Academy of Sciences*, **788** (1996), 164–170. MR 98g: 54094.
- (14) M. Megrelishvili, *Free Topological G-Groups*, *New Zealand Journal of Math.*, **25** (1996), 59–72. MR 97f: 54047.
- (13) M. Megrelishvili, *Group representations and construction of minimal topological groups*, *Topology Appl.*, **62** (1995), 1–19. MR 96b: 22001.
- (12) M. Megrelishvili, *Equivariant Completions*, *Comment. Math. Univ. Carolinae*, vol. **35:3** (1994), 539–547. MR 95i: 54045.

BEFORE THE ALIYA

- (11) M. Megrelishvili, *Linear representations and construction of minimal topological groups*, Inst. Ac. Sc. Georgian SSR, Tbilisi, 1991, 27 pp.
- (10) M. Megrelishvili, *Compactification and factorization in the category of G -spaces*, in: Categorical Topology, ed. J. Adamek and S. MacLane, World Scientific, Singapore, 1989, 220–237. MR 92c: 54031
- (9) M. Megrelishvili, *A Tychonoff G -space not admitting a compact Hausdorff G -extension or a G -linearization*, Russian Math. Surveys **43:2** (1988), 177–178. MR 89e: 54080.
- (8) M. Megrelishvili, *Quasibounded uniform G -spaces*, Inst. Ac. Sc. Georgian SSR, (GNIINTI, No. 331-G87), Tbilisi, 1987, 37 pp.
- (7) M. Megrelishvili, *Uniformity and Topological Transformation Groups*, Ph.D. Dissertation, Tbilisi State University, 1986, 125 pp.
- (6) M. Megrelishvili, *Embedding of topological spaces in spaces with strong properties of homogeneity*, Bull. Ac. Sc. Georgian SSR, **121:2** (1986), 257–260. MR 87m: 54110.
- (5) M. Megrelishvili, *Classes of uniform G -spaces*, in: Mappings and Extensions of Topological Spaces, Udmurt. State University, Iszevsk, 1985, 12–19.
- (4) M. Megrelishvili, *Equivariant completions and compact extensions*, Bull. Ac. Sc. Georgian SSR, **115:4** (1984), 21–24. MR 86m: 54054.
- (3) M. Megrelishvili, *A Factorization theorem and universal compactifications of G -spaces*, Russian Math. Surveys, **38:6** (1983), 117–118. MR 85h: 54072.
- (2) M. Megrelishvili, *Equivariant normality*, Bull. Ac. Sc. Georgian SSR, **111: 1** (1983), 43–46. MR 85g: 54039.
- (1) M. Megrelishvili, *Topological spaces with isomorphic free homogeneous spaces*, Bull. Ac. Sc. Georgian SSR, **103:3** (1981), 549–552. MR 83f: 54031.