

April 2020

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

PRESENT POSITION

2003 - present Associate Professor, Bar-Ilan University.

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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)**
Title: "*Tame dynamical systems and related structures*"
(with E. Glasner (Tel Aviv University))
- 2013-2018 **ISF (Israel Science Foundation)**
Title: "*Representations of dynamical systems on Banach spaces*"
(with E. Glasner (Tel Aviv University))
- 2007-2011 **BSF (USA-Israel Binational Science Foundation)**
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)**
Title: "*Representations of dynamical systems and fragmentability*"
- 1992-1996 **IMS (Israel Ministry of Sciences)**
Title: "*Topology of G -spaces*".
(with E. Merzbach (Bar-Ilan University))

RESEARCH SUPERVISION

Ph.D. students:

- Menachem Shlossberg (2008 - 2014)
- Luie Polev (2011 - 2017)
- Eduard Kontorovich (2008 -)
- Tzvi Scarr (1997-2002) [main supervisor Prof. Hillel Furstenberg]

M.Sc. students:

- Matan Komisarchik (2014 - 2017)
- 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., Mathematics and Mechanics Department, Tbilisi State University. Under supervision of Prof. A. Elashvili (Math. Inst. of the Georgian Ac. of Sc.)

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)

REFEREEING FOR JOURNALS:

Topology and its Applications, Semigroup Forum, Topology Proceedings, Georgian Mathematical Journal, Pure and Applied Algebra.

TEACHING EXPERIENCE:

- Bar-Ilan University 1992–present
- Holon Institute of Technology
- The College of Management, Rishon-Lezion
- Ashkelon College
- Ariel College
- 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.

Home address: Heil-Hatzanhanim st. 17, app. 16, Rishon-Lezion, 7570275 Israel,

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

Selected conference talks

- (1) St. Petersburg Dep. of Steklov Mathematical Institute of Russian Academy of Sciences, Russia, August, 2019. Title: *Group actions on treelike compact spaces* (contributed talk)
- (2) Interdisciplinary Colloquium in Topology and its Applications, Vigo, Spain, June, 2019. Title: *Group actions on treelike structures* (contributed talk)
- (3) Dynamical Methods in Algebra, Geometry and Topology, 4–6t July 2018, Udine, Italy. Title: *Generalized amenability of topological groups and Banach representations* (invited talk)
- (4) 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)
- (5) 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)
- (6) Banach Algebras and Applications, 03-11 July, 2017, Oulu, Finland. Title: *Tame functions on topological groups and (generalized) extreme amenability* (invited talk).
- (7) The Sixth Visegrad Conference Dynamical Systems, Prague, Czech Republic, July 2015. Title: *Tame functions and symbolic dynamical systems* (contributed talk)
- (8) When Topological Dynamics Meets Model Theory, Marseille, France, June 29 - July 3, 2015. Title: *Order, tame systems and topological groups* (invited talk)
- (9) Descriptive Set Theory In Paris, December 2014. Title: *Eventual nonsensitivity, tameness and topological groups* (invited talk)
- (10) IX Iberoamerican Conference on Topology and its Applications, June, 2014, Almeria, Spain. Title: *Topological groups, order preserving actions and Rosenthal Banach spaces* (invited talk)
- (11) Interactions between Logic, Topological structures and Banach spaces theory, Eilat, May 2013
Title: *Enveloping semigroups of Rosenthal Banach spaces* (contributed talk)
- (12) Workshop on set theoretic methods in compact spaces and Banach spaces, Warsaw, April 2013
(contributed talk) title: *Enveloping semigroups of Rosenthal Banach spaces.*
- (13) Measurable and Topological dynamics and related topics, Huangshan, China, June 2011
(invited talk) title: *On fixed point theorems and nonsensitivity*
- (14) 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*
- (15) II International Conference of Georgian Mathematical Union, September, 2011

- (contributed talk) title: On Fixed Point Theorems and Nonsensitivity of Dynamical Systems
- (16) Algebra meets Topology, Barcelona July, 2010
(Keynote Speaker) title: Minimality properties in topological groups
- (17) 22nd Summer conference on topology and its applications, Universidad Jaume I de Castellon, July, 2007
(invited talk) title: Fragmentability in topology and dynamics
- (18) 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
- (19) Summer Conference on Topology and its Applications, July 2006 Statesboro, GA, USA
(invited talk) title: Compactifications of Semigroups and Semigroup Actions
- (20) Workshop on the Urysohn space, May 2006, Beer-Sheva
(contributed talk) title: Globalization of Partial Actions on Topological and Metric Spaces
- (21) Workshop on Ergodic Theory and Dynamical Systems, Szklarska-Porba, Poland, June 2006
(contributed talk) title: Reflexively but not Hilbert representable compact flows
- (22) The Visegrad Conference, Dynamical Systems, Prague July 2005
(contributed talk) title: Hereditarily non-sensitive dynamical systems
- (23) International Workshop in Topological Groups: Pamplona, August 2005
(keynote speaker) title: Some new algebras of functions on topological groups
- (24) Canadian Mathematical Society, CMS/CAIMS Summer 2004 Meeting, Dalhousie University, Halifax
(contributed talk) title: Relatively minimal subgroups.
- (25) IMU Functional Analysis Meeting, Yaki Sternfeld Memorial Conference, Technion, May 2002
(contributed talk) title: Reflexively and unitarily representable topological groups.
- (26) Summer Conference on Topology and Applications, July 1-4, Auckland, New Zealand
(invited talk) title: Group actions on duals of Asplund spaces
- (27) Ninth Prague Topological Symposium, August 2001, Prague, Czech Republic
(invited talk) title: Fragmentability and representations of flows

PUBLICATIONS

REFERENCES

- (60) T. Ibarlucia and M. Megrelishvili, *Maximal equivariant compactification of the Urysohn spaces and other metric structures*, ArXiv:2001.07228, January, 2020.
- (59) M. Megrelishvili and M. Shlossberg, *Minimality properties of some topological matrix groups*, ArXiv:1912.12088, December, 2019.
- (58) M. Megrelishvili, *Median pretrees and functions of bounded variation*, ArXiv:1912.11452, December, 2019.
- (57) E. Glasner and M. Megrelishvili, *Circular orders, ultrahomogeneity and topological groups*, ArXiv:1803.06583. To appear in: AMS Contemporary Mathematics book series volume "Topology, Geometry, and Dynamics: Rokhlin - 100" (accepted).
- (56) E. Glasner and M. Megrelishvili, *Group actions on treelike compact spaces*, Science China Math. (to appear), 2019.
- (55) M. Megrelishvili, *Tame functionals on Banach algebras*, Accepted in: Banach algebras and Applications, Editor in Chief M. Mustermann und M. Maier, Volume 5/31, De Gruyeter, 2019.
- (54) M. Megrelishvili, *A note about topological group c_0* , Axioms-372065, 2018.
- (53) 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.
- (52) E. Glasner and M. Megrelishvili, *Circularly ordered dynamical systems*, Monatshefte für Mathematik, 185 (2018), 415–441.
- (51) M. Megrelishvili, L. Plev and M. Shlossberg, *Minimality of the semidirect products*, Topology Proceedings, 49 (2017), 199–214.
- (50) M. Megrelishvili, *A note on tameness of families having bounded variation*, Topology and Applications, 217 (2017), 20–30.
- (49) E. Glasner and M. Megrelishvili, *Eventual nonsensitivity and tame dynamical systems*, 2016, Preprint. ArXiv: 1405.2588.
- (48) 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.
- (47) M. Megrelishvili and L. Plev, *Order and minimality of some topological groups*. Arxiv: 1501.03410. Topology and Appl. **201** (2016), 131–144.
- (46) E. Glasner and M. Megrelishvili, *Representations of dynamical systems on Banach spaces*. In: Recent Progress in General Topology III, Springer, Atlantis Press, 2013.
<http://www.springer.com/mathematics/geometry/book/978-94-6239-023-2>
- (45) D. Dikranjan and M. Megrelishvili, *Minimality properties in topological groups*. In: Recent Progress in General Topology III, Springer, Atlantis Press, 2013.
<http://www.springer.com/mathematics/geometry/book/978-94-6239-023-2>
- (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.