RASTISLAV TELGARSKY, PH. D.

PERSONAL INFORMATION

Married, 3 children, 3 grandchildren.

Citizenship: U.S.A.

School Address: Department of Mathematics, School of Math, Science and Engineering, Central New Mexico Community College, 525 Buena Vista Dr. SE, Albuquerque, NM 87106, U.S.A.

Emails: rtelgarsky@cnm.edu, rastislav.telgarsky@gmail.com, rastislav@telgarsky.com

EDUCATIONAL BACKGROUND (6)

2001: Boeing Associate Fellow, Boeing Company (Albuquerque, NM), U.S.A.

1976: 2nd Ph.D. in Mathematics (dr. hab.), Institute of Mathematics, Polish Academy of Sciences, Warsaw, Poland.

1972: RNDr. in Mathematics, Komensky University, Bratislava, Slovakia.

1970: Ph.D. in Mathematics, Institute of Mathematics, Polish Academy of Sciences, Wroclaw, Poland.

1967: B.S./M.S. in Mathematics, Wroclaw University, Wroclaw, Poland.

1962: Associate Engineering Degree, 2-year Industrial School, Kosice, Slovakia.

INDUSTRIAL EXPERIENCE (2)

1996-2007: Scientist/Engineer, Boeing-SVS, Albuquerque, New Mexico, U.S.A.

1988-1996: Senior Mathematician/Engineer, Technical Solutions, Inc., Mesilla Park, New Mexico, U.S.A.

ACADEMIC EXPERIENCE

Visiting positions (4)

1986-88: Associate Professor, Department of Mathematical Sciences, University of Texas, El Paso, TX 79968

1985-86: Professor, Department of Mathematics, Ohio University, Athens, Ohio 45701

1983-85: Associate Professor, Department of Mathematics, Virginia Tech, Blacksburg, Virginia 24061.

1979-80: Associate Professor, Department of Mathematics, Southern Illinois University, Carbondale, Illinois 62901.

Regular positions (5)

2008-now: Part-time Instructor in Mathematics, Central New Mexico Community College, Albuquerque, New Mexico, U.S.A.

1977-86: Associate Professor, Institute of Mathematics, Technical University, Wroclaw, Poland.

1974-77: Assistant Professor, Institute of Mathematics, Technical University, Wroclaw, Poland.

1973-74: Part-time Instructor, Department of Mathematics, Comenius University, Bratislava, Slovakia.

1970-74: Research Fellow, Institute of Mathematics, Slovak Academy of Sciences, Bratislava, Slovakia.

MAIN RESEARCH AWARDS (3)

1981: Award of the Department of Education, Poland, for three papers in Game Theory

1977: Award of the Department of Education, Poland, for three papers in Topological Games and Covering Properties

1973: Award in Competition of Young Researchers in Mathematics from the Slovak Academy of Sciences, Slovakia

PROFESSIONAL ACTIVITIES

Leading seminars

1974-83: Game Theory
1973-74: Probability and Stochastic Processes (with Miloslav Duchon)

Participating in seminars

1987-88: Computer Vision
1986-87: Artificial Intelligence

1983-86: Topology
1974-83: Functional Analysis

Departmental Service

1982-83: Vice Chairman of the Institute of Mathematics, Technical University, Wroclaw, Poland.

Membership in Professional Associations

1970-1974: Union of Czechoslovak Mathematicians and Physicists (JCSMF)
1974-1983: Polish Mathematical Society (PTM)
1968-1997: American Mathematical Society (AMS)
1986-1987: Society for Industrial and Applied Mathematics (SIAM)
1985-2003: Association for the Computing Machinery (ACM)
1989-1993: Institute for Electrical and Electronic Engineers (IEEE)
2012-now: Polish Mathematical Society (PTM)

Referee of manuscripts for

Proceedings of the American Mathematical Society
American Journal of Mathematics
Transactions of the American Mathematical Society
Topology and its Applications
Fundamenta Mathematicae
Colloquium Mathematicum
Mathematica Slovaca
Bulletin de l'Academie Polonaise des Sciences
and other journals

Reviews of papers for

Mathematical Reviews
Zentralblatt fur Mathematik

Translations (3)

J. M. Bochenski, ABC Tomizmu (Londyn, Veritas 1950), Samizdat 1973; from Polish to Slovak.

J. B. Dynkin et. al., Mathematical Puzzles, Bratislava-Moscow 1976; from Russian to Slovak.

P. Vopenka, Infinity as viewed by B. Bolzano, Wiadomosci Matematyczne 26.2 (1985), 171-204, from Czech to Polish.

COURSES TAUGHT

Business Mathematics
Calculus
Classical Geometry
Differential Equations (Linear)
Finite Mathematics
Functional Analysis
Game Theory
General Topology
Linear Algebra
Measure Theory
Methods of problem solving
Set Theory and Logic
Probability and Statistics
Programming in Pascal

MASTER THESES SUPERVISED (12)

1981
• *Jerzy Legut*, Games of fair division and Lyapunoff Theorem (in Polish), Technical University, Wroclaw, Poland.

1979
• *Grzegorz Kubicki*, On some infinite positional games of perfect information (in Polish), Technical University, Wroclaw, Poland.
• *Malgorzata Pajak*, General Minimax Theorems (in Polish), Technical University, Wroclaw, Poland.

1978
• *Janusz Zaleski*, The existence of equilibrium in non-cooperative games (in Polish), Tech University, Wroclaw, Poland.
• *Andrzej Madrecki*, Games of Wu-Wen-Tsun (in Polish), Tech University, Wroclaw, Poland.
• *Kamila Urban*, Solving matrix and bimatrix games (in Polish), Tech University, Wroclaw, Poland.

1977
• *Andrzej Grudzinski*, The problem of pursuit in continuous and discrete games (in Polish), Tech University, Wroclaw, Poland.
• *Ryszard Kretkowski*, Approximation theorems for strategic games using the structure of I-topology and S-topology (in Polish), Tech University, Wroclaw, Poland.
• *Andrzej Nowak*, On methods of solving stochastic games (in Polish), Tech University, Wroclaw, Poland.

1975

• *Waclaw Ropiecki*, Utility functions in strategic games (in Polish), Tech University, Wroclaw, Poland.

1974

• *Libusa Lipkova*, Finitely additive strategies (in Slovak), Comenius University, Bratislava, Slovakia.

• *Jan Kiss*, On strategic games approximated by matrix games (in Slovak), Comenius University, Bratislava, Slovakia.

DOCTORAL THESIS SUPERVISED (3)

1985

Jerzy Legut, Cooperative and non-cooperative games of fair division (in Polish), Tech University, Wroclaw, Poland.

1983

Grzegorz Kubicki, On Sierpinski game (in Polish), Tech University, Wroclaw, Poland.

1981

Andrzej Nowak, On zero sum stochastic games with general state space (in English), Tech University, Wroclaw, Poland.

RESEARCH PUBLICATIONS (59)

2013

• Dominant Frequency Extraction, Proc. of the Czech-Polish-Slovak Mathematical Conference held in Litomerice, Czech Republic. (also: arXiv).

• Mathematics without infinity, in: Matematyka w przyrodzie i sztuce, Nowy Sacz, Poland.

• Updated bibliography of topological games, 32 pages, www.telgarsky.com.

2012

• Multi-target tracking algorithms in 3D, Scientific Issues, Mathematica IV, Ruzomberok, Slovakia, 2012, 165-171. (also: arXiv)

2011

• Applications of Topology in Computer Algorithms, Matematyka Stosowana, 13/54, 2011. (also: arXiv)

2004

• High Fidelity Ladar Simulation (with M. C. Cates, C. Thompson, and J. N. Sanders-Reed), Proc. of SPIE Vol. 5412, April 2004, 194-207.

2002
• Limitation on the bandwidth of tracking through the atmosphere (with P. H. Merritt, R. Pringle, Jr., S. Peterson, R. L. Brunson and S. D. O'Keefe), Laser Weapons Technology III, Proc. of SPIE Vol. 4724 (2002).

2001
• Performance of tracking algorithms under airborne turbulence (with P. Merritt, S. Peterson, S. O'Keefe, R. Pringle, and R. Brunson), Laser Weapons Technology II, Proc. of SPIE Vol. 4376 (2001).

1999
• Testing of Tracking Algorithms under Airborne Turbulence (with Paul H. Merritt and Richard Brunson), Proceedings of the SPIE Conference on Airborne Laser Advanced Technology II, Orlando, Florida, April 1999, SPIE Vol. 3706, 240-248.

1990
• Stationary strategies in deterministic games, in: Game Theory and Applications, ed. by T. Ichiishi, A. Neyman and Y. Tauman, Academic Press, New York, 1990, p. 409.

1989
• Fractals - recursive curves, Big Blue Disk Software Collection, Softdisk Publishing, No. 30, 1989 (program for IBMPC).
• Recursive W-curves in Pascal, TUG Lines, The Journal of the Turbo User Group, Issue 31, June/July 1989, 26-30.
• Iterative W-curves in C, TUG Lines, The Journal of the Turbo User Group, Issue 32, August/September 1989, 36-39.

1988
• Complete exhaustive sieves and games, (with H. H. Wicke), Proc. Amer. Math. Soc. 102 (1988), 737-744.
• Complex curves from simple math, The Journal of Chaos and Graphics, Vol. 3, August 1988, p. 16.
• Remarks on closure-preserving sum theorems (with J. C. Smith), Topology Proceedings 13 (1988), 125-136.

1987
• Once more through the sieve, BYTE 12 (1987), 36-44.
• Curves, Crystals, Mosaics, J. of Chaos and Graphics 2 (1987), 4-7.
• Closure-preserving covers and sigma-products, (with J. C. Smith), Proc. Japan Acad. 63 (1987), 118-120.
• Remarks on a game of Choquet, Colloq. Math. 51 (1987), Fasc. 1/2, 365-372.
• A singular space related to the point-open game, (with H. J. K. Junnila and T. Nogura), Proc. Amer. Math. Soc. 99 (1987), No. 3, 568-570.
• Topological Games: On the 50th Anniversary of the Banach-Mazur Game, Rocky

Mountain J. Math. 17 (1987), 227-276.

1986
• Stationary strategies in topological games, (with F. Galvin), Topology Appl. 22 (1986), 51-69.
• On closure-preserving covers by small sets, (with H. J. K. Junnila and J. C. Smith), Topology Appl. 23 (1986), 237-262.

1985
• LISP, Personal Computers, Computing Centre LOG, Virginia Tech, 18, Summer 1985.

1984
• On games of Topsoe, Mathematica Scandinavica 54 (1984), 170-176.

1983
• Spaces defined by topological games, II, Fund. Math. 116 (1983), 189-207.
• On totally bounded games, (with R. Kretkowski), Mathematica Slovaca 33 (1983), 381-387.
• On sieve-complete and compact-like spaces, Topology Appl. 16 (1983), 61-68.

1982
• Order-cushioned refinements and normality, (with J. C. Smith), Proc. Amer. Math. Soc. 85 (1982), 475-479.
• On a game of Choquet, Proc. Fifth Prague Topological Symposium, Prague 1981, Heldermann Verlag, Berlin 1982, 585-592.

1980
• On point-open games and their generalizations, Topology, Vol. II, (Proc. Fourth Colloq. Budapest 1978), Colloq. Math. Soc. Janos Bolyai, 23, 1980, 1167-1172.
• On order locally finite and closure-preserving covers, (with Y. Yajima), Fund. Math. 109 (1980), 211-216.
• Topological games and analytic sets, II, (with A. J. Ostaszewski), Topology Proceedings 5 (1980), 147-154.

1978
• Topological games and measures, in: Proc. Conf. Topology and Measure, Zinnowitz 1974, Wissenschaftliche Beitrage E.-M.-Arndt Universitat, Greifswald, 1978, 333-342.
• The nonexistence of universal invariant measures, (with C. Ryll-Nardzewski), Proc. Amer. Math. Soc. 69 (1978), 240-242.
• The Game Theory, in: Small Encyclopedia of Mathematics, Obzor, Bratislava 1978, 609-618 (in Slovak).

1977
• Subspaces N + {p} of beta N with no scattered compactifications, Bull. Acad. Polon.

Sci. 25 (1977), 387-389.

• Scattered compactifications and points of extremal disconnectedness, Bull. Acad. Polon. Sci. 25 (1977), 155-159.

• On some topological games, Proc. Fourth Prague Topological Symposium, Prague 1976, Part B, Contributed Papers, Society of Czechoslovak Mathematicians and Physicists, Prague 1977, 461-472.

• Scattered compactifications, Fifth Winter School on Abstract Analysis, 1977, Math. Inst. Czechoslovak Acad. of Sciences, Prague 1977, 99-101.

• Topological games and analytic sets, Houston J. Math. 3 (1977), 549-533.

1976

• Concerning two covering properties, Colloq. Math. 36 (1976), 57-61.

1975

• Spaces defined by topological games, Fund. Math. 88 (1975), 193-223.

• A characterization of P-spaces, Proc. Japan Acad. 51 (1975), 802-807.

1974

• On topological properties defined by games, Topics in Topology (Proc. Colloq. Keszthely 1972), Colloq. Math. Soc. Janos Bolyai, Vol. 8, North-Holland, Amsterdam 1974, 617-624.

• Closure-preserving covers, Fund. Math. 85 (1974), 165-175.

1972

• Concerning product of paracompact spaces, Fund. Math. 74 (1972), 153-159.

• Covering properties and product spaces, Proc. Third Prague Topological Sympos., Prague 1971, Academia, Prague 1972, 437-439.

1971

• C-scattered and paracompact spaces, Fund. Math. 73 (1971), 59-74.

• The space of rationals is not absolutely paracompact, (with H. Kok), Fund. Math. 73 (1971), 75-78.

1970

• On the scattered compactification, (with C. Ryll-Nardzewski), Bull. Acad. Polon. Sci. 18 (1970), 233-234.

1969

• On some covering properties of metric spaces, Proc. First Internat. Sympos. on Extension Theory of Topological Structures and its Appl., Berlin 1967, DVW, Berlin 1969, 225-226.

• On the product of paracompact spaces, Bull. Acad. Polon. Sci. 17 (1969), 533-536.

1968

• Some applications of the natural sum of ordinals in topology, Bull. Acad. Polon. Sci. 16 (1968), 1-2.
• Derivatives of Cartesian product and dispersed spaces, Colloq. Math. 19 (1968), 59-66.
• On some covering properties of metric spaces, (with R. Duda), Czechoslovak Math. J. 18 (1968), 66-82.
• Star-finite coverings and local compactness, Bull. Acad. Polon. Sci. 16 (1968), 625-628.
• Total paracompactness and paracompact dispersed spaces, Bull. Acad. Polon. Sci. 16 (1968), 567-572.

PRESENTATIONS AT PROFESSIONAL MEETINGS (28)

2013
• Nowy Sacz, Poland, Mathematics in Nature and Art, May 16-17. *Mathematics without infinity* (in Polish).
• Litomerice, Czech Republic, XX. Czech-Polish-Slovak Mathematical Conference, May 29-31. *Dominant Frequency Extraction* (in Polish).
• Nitra, Slovakia, 11th Mathematics Conference at the Constantine the Philosopher University, June 27. *My experience in teaching mathematics in the U.S.A.* (in Slovak).

2012
• Spisska Kapitula, Slovakia, XIX. Czech-Polish-Slovak Mathematical Conference, June 5-8. *Algorithms for Multi-target Tracking in 3D with 2D Array Photon-Counting Ladar* (in Slovak).

2011
• Wroclaw, Poland, Workshop on Games and Markov Decision Processes, July 11. *On Coopetition Games; Cooperation & Competition Combined (in English).*

1999
• Yokohama, Japan, International Topology Conference. *Applications of Topology in Computer Algorithms* (in English).
• Yokohama, Japan, Lecture at the Landmark Tower, *Computer Problem of the Year 2000* (in English with Japanese translation)

1992
• Colorado Springs, Colorado, Mathematical Aspects of Computer Vision. *Target extraction form background via string matching*.

1988
• Las Cruces, New Mexico, 842nd Meeting of the American Mathematical Society. *Recursive sets in Computer Graphics*.

1987

• Cincinnati, Ohio, Conference on Fractal Geometry. *Recursive curves* (A computer program drawing over 50 recursive curves).
• Columbus, Ohio, International Conference on Game Theory and Application. *Stationary strategies in deterministic games*.

1986
• New Orleans, Louisiana, Annual Meeting of the American Mathematical Society. *A singular space related to the point-open game*.

1985
• Auburn, Alabama, Spring Topology Conference. *Outline of topological games*.

1984
• Columbia, South Carolina, Topology Conference. *Some problems in topological games*.

1983
• Eger, Hungary, Colloquium on Topology. *Stationary strategies in topological games*.

1981
• Prague, Czech Republic, Fifth Prague Topological Symposium. *On a game of Choquet*.

1980
• Birmingham, Alabama, Topology Conference. *Topological games and analytic sets*.

1978
• Budapest, Hungary, Colloquium on Topology. *On point-open games and their generalizations.*

1977
• Wroclaw, Poland, Logic Colloquium. *On some infinite positional games*.
• Stefanova, Slovakia, Winter School on Abstract Analysis. *Scattered compactifications*.

1976
• Prague, Czech Republic, Fourth Prague Topological Symposium. *On some topological games.*

1974
• Zinnowitz, Germany, Conference on Topology and Measure. *Topological games and measures*.

1973
• Bierutowice, Poland, Third Fall School on Methods of Mathematics in Technical Sciences. *Applications of Game Theory*.

1972

• Keszthely, Hungary, Colloquium on Topology. *On topological properties defined by games.*

1971

• Smolenice, Slovakia, Spring Seminar on Measure Theory. *On invariant measures*.
• Prague, Czech Republic, Third Prague Topological Symposium. *Covering properties and product spaces.*

1970

• Jasna, Slovakia, Second Conference of Slovak Mathematicians. *Covering properties of topological spaces* (in Slovak).

1967

• Novosibirsk, Russia, All-Union Topological Conference. *Products of scattered spaces* (in Russian).
• Berlin, Germany, Symposium on Extension of Topological Structures and Applications. *On some covering properties of metric spaces* (in English).

PATENTS (1)

Spectral Geographic Information System (with F. Portigal), U. S. Patent granted on November 11, 2008.

INVENTION DISCLOSURES (1)

Multi-Target Tracking in 3D Frames of Multi-Resolution Photon Counting Ladar (with M. Salisbury), Invention Disclosure Award from the Boeing Company, 2008.

INVITED LECTURES

University of North Carolina, Greensboro, North Carolina
New Mexico State University, Las Cruces, New Mexico
George Mason University, Fairfax, Virginia
Virginia Tech, Blacksburg, Virginia
University of Arkansas, Fayetteville, Arkansas
Clemson University, Clemson, South Carolina
Mathematisch Centre, Amsterdam, Holland
Moscow State University, Moscow, Russia
Hungarian Academy of Sciences, Budapest, Hungary
Komensky University, Bratislava, Slovakia
Charles University, Prague, Czech Republic
Polish Academy of Sciences, Warsaw, Poland
Wroclaw University, Wroclaw, Poland
Silesian University, Katowice, Poland

FELLOWSHIPS AND GRANTS (4)

Research Fellowship in Polish Academy of Sciences, 1972
Research Grants from Technical University, Wroclaw, 1975-1976
Research Grants from Polish Academy of Sciences, 1976-83
Grant from U. S. Department of Education, 1986-1988.

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