Curriculum Vitae

Tamás Mátrai

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Personal data

Name: Tamás Mátrai
Date of Birth: 30 September 1978
e-mail: tmatrai@math.rutgers.edu
Homepage: http://www.renyi.hu/∼matrait
Address: 4 Holly Court, Highland Park, NJ, 08904

Education

June 2006	**Summa cum laude PhD degree** of the Central European University and of the Alfréd Rényi Institute of Mathematics, Hungarian Academy of Sciences, Budapest
2002 – June 2006	**PhD student** in the joint PhD program of the Central European University and of the Alfréd Rényi Institute of Mathematics, Hungarian Academy of Sciences, Budapest, Department of Mathematics and Its Applications, supervisor Tamás Keleti
2002	**Summa cum laude diploma** in mathematics and French translator of the Loránd Eötvös University of Sciences, Faculty of Sciences, Budapest
1997 – 2002	**Student of Pure Mathematics** at the Loránd Eötvös University of Sciences, Faculty of Sciences, Budapest
1993 –1997	**Student of Pure Mathematics** at Mihály Fazekas Secondary Grammar School, Budapest

Employment

September 2009 – Present	**Visitor** at Rutgers University, Department of Mathematics, New Jersey
August 2008 – Present	**Postdoctoral fellow** of the University of Toronto, Department of Mathematics, Toronto
June 2006 – July 2008	**Postdoctoral fellow** of the Set Theory and General Topology research group of the Alfréd Rényi Institute of Mathematics, Hungarian Academy of Sciences, Budapest
September 2006 – June 2007	**Visiting professor**, Loránd Eötvös University of Sciences, Department of Analysis, Budapest
September 2006 – June 2007	**Visiting professor**, Central European University, Department of Mathematics and Its Applications, Budapest
2000 – 2002	**Teaching assistant**, Loránd Eötvös University of Sciences, Budapest
1999	**Teaching assistant**, Budapest University of Technology, Department of Computer Science, Budapest

Fellowships

March 2008 – May 2008
Roman Herzog Postdoctoral Fellowship of the Alexander von Humboldt und Gemeinnützige Hertie Stiftungen, Workgroup Functional Analysis der Universität Karlsruhe
Supervisor: Prof. Dr. Lutz Weis
Subject: Partial differential equations on fractal-like domains

November 2006 – October 2007
József Öveges Postdoctoral Fellowship of the National Office for Research and Technology, Alfréd Rényi Institute of Mathematics, Hungarian Academy of Sciences
Supervisor: István Juhász
Subject: Descriptive set theory, set theoretic topology

March 2006 – August 2006
Roman Herzog Postdoctoral Fellowship of the Alexander von Humboldt und Gemeinnützige Hertie Stiftungen, Workgroup Functional Analysis der Universität Karlsruhe
Supervisor: Prof. Dr. Lutz Weis
Subject: Strongly continuous operator semigroups, partial differential equations

February 2004 – April 2004
Predoctoral Fellowship of the Analysis and Operators European Training Network, Equipe d'Analyse Fonctionnelle de l'Université Pierre et Marie Curie - Paris 6
Supervisor: Gilles Godefroy, Jean Saint-Raymond
Subject: Descriptive set theory

2003
Marie Curie Research Fellowship, Mathematisches Institut der Universität Tübingen
Supervisor: Prof. Dr. Rainer Nagel
Subject: Strongly continuous operator semigroups, partial differential equations

2002
Marie Curie Research Fellowship, Department of Mathematics of University College London
Supervisor: Marianna Csörnyei, David Preiss
Subject: Set theoretic topology, geometric measure theory

Awards

2008
First Prize of the Best Dissertation Award of the Central European University

2007
Junior Prima Prize for Excellence in Mathematics of the Prima Primissima Foundation

2006
Grűnwald Géza Prize of the János Bolyai Mathematical Society

2004
Excellent PhD student of the Central European University

2003
Rényi Kató Prize of Young Researchers, first degree
First prize on the National Research Conference of University Students
First prize on the Research Conference of the Loránd Eötvös University of Sciences, Faculty of Sciences

2001
Honorable Mention at Miklós Schweitzer Competition of University Students
Excellent Student of the Faculty of Sciences, Loránd Eötvös University of Sciences, Faculty of Sciences
Fellowship of the President of Hungarian Republic, Loránd Eötvös University of Sciences, Faculty of Sciences

2000	**Fourth prize** at 10th Vojtech Jarník International Mathematical Competition, Ostrava **Third prize** at Miklós Schweitzer Competition of University Students
1999	**Second prize** at Miklós Schweitzer Competition of University Students
1998	**First prize** at 5th International Mathematics Competition for University Students, Blagoevgrad **Mention** at Miklós Schweitzer Competition of University Students

Teaching

2008 – 2009	**Number Theory**, undergradurate course, University of Toronto, Toronto **Foundations of Analysis**, undergradurate course, University of Toronto, Toronto
2006 – 2007	**Meromorphic Functions**, undergraduate special course, Loránd Eötvös University of Sciences, Budapest **Laplace Transform and Hardy spaces**, undergraduate special course, Loránd Eötvös University of Sciences, Budapest **Effective Descriptive Set Theory**, undergraduate special course, Loránd Eötvös University of Sciences, Budapest **Descriptive Set Theory Problem Solving Seminar**, undergraduate special course, Loránd Eötvös University of Sciences, Budapest **Foundations of Analysis**, graduate course, Central European University, Budapest
2000 – 2002	**Ordinary Differential Equations**, undergraduate course, Loránd Eötvös University of Sciences, Budapest **Introduction to Probability Theory**, undergraduate course, Loránd Eötvös University of Sciences, Budapest **Basic Calculus**, undergraduate course, Loránd Eötvös University of Sciences, Budapest
1999	**Introduction to Combinatorics, Linear Algebra and Number Theory**, Budapest University of Technology, Budapest

Invited talks

2010	**5$^{\text{th}}$ International Conference Japan-Mexico on Topology and its Applications**, Colima, Mexico **XXXIV$^{\text{th}}$ Summer Symposium in Real Analysis**, Wooster, OH **CUNY Logic Seminar**, New York, NY. Title: *Quests for perfect sets* **44$^{\text{th}}$ Spring Topology and Dynamics Conference**, Starkville, MS. Title: *On a partition calculus of partial orders* **14$^{\text{th}}$ South Eastern Logic Symposium**, Gainesville, FL. Title: *On F_σ p-ideals and Tukey reducibility*
2009	**ESI workshop on Large cardinals and descriptive set theory**, Vienna, Austria. Title: *Cofinal types of definable directed orders*
2008	**Logic Colloquium 2008**, Bern, Switzerland. Title: *On a new σ-ideal of compact sets*

2007	**Seminar of Young Researchers**, Budapest, Hungary. Title: *Kenilworth*
2007	**Celebrating Mathematics**, Budapest, Hungary. Title: *Mi a matematika? (What is Mathematics?)*
2006	**Functional Analysis Seminar**, Tübingen, Germany. Title: *A travel around norm continuity*
2006	**Descriptive Set Theory Seminar**, Bordeaux, France. Title: *Convergence de suites transfinies de fonctions*

Miscellanea

Language skills	**English**: fluent **French**: fluent
Reviewer	**AMS Mathematical Reviews** **Zentralblatt Math Database**
Editorship	**The Real Analysis Problem Book**, joint work with Márton Elekes and Tamás Keleti, open access manuscript
Memberships	**János Bolyai Mathematical Society**, member **The Association for Symbolic Logic**, member

List of Publications

Dissertations

[1] **Hurewicz tests: separating and reducing analytic sets the conscious way**, PhD dissertation, 2006.

[2] **Difference functions of periodic L_p functions**, thesis, 2002.

Accepted papers

[3] **On the difference property of Borel measurable functions**, joint paper with Hiroshi Fujita, *Fund. Math.*, to appear.

[4] **On a σ-ideal of compact sets**, *Topol. Proc.*, to appear.

[5] **On splitting infinite-fold covers**, joint paper with Márton Elekes and Lajos Soukup, *Fund. Math.*, to appear.

[6] **Kenilworth**, *Proc. Amer. Math. Soc.* 137 (2009), 1115–1125.

[7] **On monotone presentations of Borel sets**, joint paper with Miroslav Zelený, *Real Anal. Echange* 34 (2008/09), no. 2., 311–318.

[8] **On ℓ^p-like equivalence relations**, *Real Anal. Echange* 34 (2008/09), no. 2, 377–412.

[9] **On Perturbations Preserving the Immediate Norm Continuity of Semigroups**, *J. Math. Anal. Appl.* 341 (2008), No. 2, 961–974.

[10] **Resolvent norm decay does not characterize norm continuity**, *Israel J. Math.* 168 (2008), 1–28.

[11] **Hurewicz test sets for generalized separation and reduction**, *Math. Proc. Cambridge Phil. Soc.* 143 (2007), No. 2, 407–417.

[12] **Covering $\mathbf{\Sigma}^0_\xi$-generated ideals by $\mathbf{\Pi}^0_\xi$ sets**, *Comment. Math. Univ. Carolin.* 48 (2007) no. 2, 245–268.

[13] **Asymptotic behavior of flows in networks**, joint paper with Eszter Sikolya, *Forum Mathematicum*, Vol. 19 (2007), Issue 3, 429–461.

[14] **Topological aspects of Hurewicz tests for the difference hierarchy**, *Ukrainian Mathematical Bulletin*, 3 (2006), no. 4, 520–546.

[15] **Covering the Edges of a Graph by Three Odd Subgraphs**, *J. Graph Theory* 53 (2006), No. 1, 75–82.

[16] **On the closure of Baire classes under transfinite convergences**, *Fund. Math.*, 183 (2004), 157–168.

[17] **On perturbations of eventually compact semigroups preserving eventual compactness**, *Semigroup Forum*, 69 (2004), no. 3, 317–340.

[18] **A nowhere convergent series of functions which is somewhere convergent after a typical change of signs**, joint paper with Tamás Keleti, *Real Anal. Exchange* 29 (2003/04), no. 2, 891–894.

[19] **A Characterization of Essentially Ejective Sets**, joint paper with Imre Z. Ruzsa, *Real Anal. Exchange* 29 (2003/04), no. 2, 587–600.

[20] **The ω_1-limit of Baire-2 functions is Baire-2**, *Annales Univ. Sci. Budapest, Sectio Math.* 46 (2003), 167–174.

[21] **Graphs of Gateaux Derivatives is $w^\star$-connected**, *Real Anal. Exchange* 29 (2003/04), no. 1, 291–297.

[22] **A characterization of spaces l-equivalent to the unit interval**, *Topology Appl.* 138 (2004), no. 1-3, 299–314.

[23] **Weak difference property of functions with the Baire property**, *Fund. Math.* 177 (2003), no. 1, 1–17.

[24] **Difference functions of periodic L_p functions**, *Real Anal. Exchange* 28 (2002/03), no. 2, 355–373.

Conference proceedings

[25] **Partitioning κ-fold covers into κ many subcovers**, joint proceeding with Márton Elekes and Lajos Soukup, *Real Anal. Exchange*, 2007, $XXXI^{st}$ Summer Symposium Conference, 121–125.

[26] **On monotone presentations of Borel sets**, *Real Anal. Exchange*, 2007, $XXXI^{st}$ Summer Symposium lecture notes.

[27] **Lecture Notes on Differentiability of Lipschitz Mappings**, 2003, Summer school in Geometric Measure Theory, Luminy, manuscript.

[28] **Functions, differences and their differences**, *Real Anal. Exchange*, 2003, $XXVII^{th}$ Summer Symposium lecture notes.

Preprints

[29] **Infinite dimensional perfect set theorems**, submitted.

[30] **$\mathbf{\Pi}^0_2$-generated ideals are unwitnessable**, submitted.

[31] **More cofinal types of definable directed orders**, preprint.

[32] **On the typical behavior of operators**, joint work with Tanja Eisner, preprint.