Constantin Gabriel Picioroaga

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Education

• **Ph.D. in Mathematics**, The University of Iowa, July 2005.
Thesis Advisor: Professor Florin Radulescu.
Thesis Title: "Amenability Properties of the Von Neumann Algebras Associated with the Generalized Thompson Group".

• **M.S. in Mathematics**, The University of Bucharest, Romania, June 1998. Specialization: Real and Complex Analysis.

• **B.S. in Mathematics and Computer Science**, The University of Transylvania, Romania, June 1997.

Research Interests

Operator Algebras, Functional and Harmonic Analysis of Wavelets and Frames, Measure Group Theory.

Professional Experience

• Assistant Professor, Department of Mathematical Sciences, The University of South Dakota, August 2009 - present.

• Riley Visiting Assistant Professor, Department of Mathematical Sciences, Binghamton University (SUNY), August 2006 - August 2009.

• Postdoctorate position in the Department of Mathematics and Computer Science (IMADA), University of Southern Denmark, Odense, Denmark, September, 2005- July, 2006.

• Teaching/Research Assistant in the Department of Mathematics University of Iowa, Iowa City , August, 1999- July, 2005.

Teaching Experience

• University of South Dakota: Calculus I, II and III, Advanced Calculus, Abstract Algebra, Modern Geometry, Real Analysis (graduate course), Topology (graduate course).

• Binghamton University: Calculus I, Multivariable Calculus, Real Analysis II, Ordinary Differential Equations, Partial Differential Equations, Complex Analysis (graduate course).

• University of Southern Denmark: Analysis.

• The University of Iowa: Elementary Functions, Calculus I, Calculus II, Multivariable Calculus (with Mathematica software), Fundamental Properties of Spaces of Functions I, General Topology, Comprehensive Exam Preparation Seminar-Analysis (for graduate students).

Other:
• Two courses in pedagogy at The University of Transylvania + 120 hours of pedagogical training (teaching at several top high schools in Brasov, Romania).
• Teaching Assistant for one year in the Department of Mathematics at The University of Transylvania: Discussion Sections for Multivariable Calculus and Probability Theory.

Publications

• "Fuglede-Kadison determinants for operators in the von Neumann algebra of an equivalence relation" (with C.Georgescu), to appear in *Proc. Amer. Math. Soc.*.
• "New Presentations of Thompson's Groups and Applications" (with U. Haagerup), *Journal of Operator Theory* 66 (2011), no. 1, 217-232.
• "Parseval Frames for ICC Groups", (with D.Dutkay and D.Han),*Journal of Functional Analysis* 256 (2009), no.9, 30071-3090.
• "Unitary Representations of Wavelet Groups and Encodings of Iterated Function Systems in Solenoids ", (with D.Dutkay and P.Jorgensen), *Ergodic Theory and Dynamical Systems* 29 (2009), no.6, 1815-1852.
• "Orthonormal Dilations of Parseval Wavelets", (with D.Dutkay, D.Han and Q.Sun), *Mathematische Annalen*, 341(2008), pp.483-515.

- ”C* Estimates for Averaging Sums of Elements in the Thompson Group F”, (with I.Chifan), *Perspectives in Operator Algebras and Mathematical Physics*, *Theta Series in Advanced Mathematics 8*, Theta, Bucharest, 2008, pp.41-51.
- ”The Inner Amenability of the Generalized Thompson Group”, *Proc. Amer. Math. Soc.* 134 (2006), no. 7, pp.1995-2002.
- ”The Von Neumann Algebra of the Canonical Equivalence Relation of the Thompson Group” (with D. Dutkay), *Operator theory 20*, pp.81–91, Theta Ser. Adv. Math., 6, *Theta, Bucharest*, 2006., math.OA/040333.
- ”MRA Superwavelets” (with S. Bildea and D. Dutkay), *New York Journal of Mathematics*, 11 (2005) pp.1-19.

Papers Submitted or in Progress

- ”Orthonormal bases generated by Cuntz algebras” (with D. Dutkay, and M. Song), submitted.
- ”On Common Fundamental Domains” (with D. Dutkay, D. Han and P. Jorgensen), submitted.
- ”Representations of Thompson's Group F in $L^2(\mathbf{R}^n)$ ” (with M.Brin and D.Dutkay), in progress.

Selected Invited Talks

- *Fuglede-Kadison Determinants for Operators in the von Neumann Algebra of an Equivalence Relation* , 1074th AMS Meeting, University of Nebraska-Lincoln, October 2011.

- *Fuglede-Kadison Determinants*, Great Plains Operator Theory Symposium, Arizona State University, Tempe, May, 2011.

- *On Common Fundamental Domains*, Macalester College, St. Paul, April,2010 Spring Central Sectional Meeting.

- *Orthonormal Dilations of Parseval Frames*, University of British Columbia and the Pacific Institute for the Mathematical Sciences, Vancouver, Canada, October, 2008 AMS Fall Western Section Meeting.

- *Representations of Thompson's Group F in $L^2(\mathbf{R}^n)$*, Great Plains Operator Theory Symposium, University Of Cincinnati, Cincinnati, June, 2008.

- *Orthonormal Dilations of Parseval Wavelets* SIAM-SEAS 2008, Special session on Wavelets and Sampling, University of Central Florida, March

2008.

• *New Presentations of Thompson's groups and Some Consequences*, Great Plains Operator Theory Symposium, University Of Nebraska, Lincoln, May, 2007.

• *Some Properties of Exact Groups*, Topology and Geometric Group Theory Seminar, Cornell University, February 2007.

• *Exact Groups*, Analysis Seminar, University of Central Florida, April 2007.

• *The Cost of a Group*, Operator Algebra Seminar, University of Southern Denmark, October 2005.

• C^* *Estimates for Averaging Sums of Elements in the Thompson Group F*, 6th Operator Algebras International Conference, IMAR, Bucharest, Romania, August 10-17, 2005.

• C^* *Estimates for Averaging Sums of Elements in the Thompson Group F*, Great Plains Operator Theory Symposium, University of Central Florida, June 2005.

• *On the Richard Thompson Group F*, Heartland Partnership grad. student visitor, Truman State University, February 24, 2005.

• *The Von Neumann Algebra of the Canonical Equivalence Relation of the Thompson Group*, 20th International Conference on Operator Theory, Timisoara, Romania, June 30-July 5, 2004.

• *The Von Neumann Algebra of the Canonical Equivalence Relation of the Thompson Group*, Geometric Group Theory, Random Walks and Harmonic Analysis, Cortona, Italy, June 13-18, 2004.

• *The Von Neumann Algebra of the Canonical Equivalence Relation of the Thompson Group*, The 24th Annual Great Plains Operator Theory Symposium, Texas A&M University, May 26-30, 2004.

Other Conferences/Workshops Attended

• The Fifth East Coast Operator Algebras Symposium, Wellesley College, September 29-30, 2007.
• Operator Algebras and Applications, University of Southern Denmark, April 19-23, 2006.
• Workshop on Wavelets (a mathematical conference in connection with

Washington University sesquicentennial celebrations), Washington University in St. Louis, March 15-19, 2004.

• Operator Algebras and Mathematical Physics Conference, Sinaia, Romania, June 2003.

• Iowa-Nebraska Functional Analysis Seminar, April 2002, October 2003.

• Wabash Modern Analysis Miniconference, Indiana Univ.-Purdue Univ. at Indianapolis, September 21-22, 2002.

Awards/Honors

• Research Excellence Development Grant, (with C.Georgescu), The Office of Research and The College of Arts and Sciences, November 2010 - June 2011.

• Scientific Researcher for the *Thematic Program on Operator Algebras*, Fields Institute, Toronto, Canada, November-December, 2007.

• Graduate fellowship from the University of Iowa, Summer 2004, Summer 2003, Summer 2002.

• One month research scholarship "Spazi Quantistici e Geometria Non- Commutativa", offered by the Department of Mathematics at Tor Vergata University, Rome, Italy, Summer 2003.

Additional Activities

• Reviewer for *Mathematical Reviews*.