

Remus I. Nicoara

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Education

University of Bucharest, Romania	Mathematics	Bachelor Degree, June 1999
University of California, Los Angeles	Mathematics	Ph.D., June 2004
Vanderbilt University, Nashville	Mathematics	Postdoc, August 2004 - June 2007

Graduate Advisor: Sorin Popa, University of California Los Angeles

Postdoctoral Advisor: Dietmar Bisch, Vanderbilt University

Appointments

2019 - present	Professor , University of Tennessee Knoxville
2016 – 2023	Director of Math Honors and Undergraduate Research , University of Tennessee Knoxville
2012 – 2016	Director of Math Honors , University of Tennessee Knoxville
2013 – 2019	Associate Professor , University of Tennessee Knoxville
2007 – 2013	Assistant Professor (tenure track), University of Tennessee Knoxville
2004 – 2007	Assistant Professor (postdoctoral), Vanderbilt University
1999 – 2004	Research and Teaching Assistant , University of California Los Angeles
2004 – present	Scientific Researcher II , Institute of Mathematics of the Romanian Academy

Doctoral Students

Joseph White - PhD in Mathematics, Spring 2014, at the University of Tennessee Knoxville. Currently employed as Model Risk Management Analyst at BB&T.

Chase Worley - PhD in Mathematics, Summer 2017, at the University of Tennessee Knoxville. Currently employed as Lecturer at Maryville College.

Shuler Hopkins - PhD in Mathematics, Summer 2022, at University of Tennessee Knoxville. Currently employed as Assistant Professor at the University of the South.

Awards/Honors

Ann S. Keith Memorial Faculty **Teaching Award** (2024)

Math Graduate Student Council **Teaching Award** (2019)

Chancellor's Excellence in **Advising Award** at the University of Tennessee (2016)

Professional Development Award at the University of Tennessee (2016)

Advising Award of the UT College of Arts and Sciences (2014)

Principal Investigator, NSF award "The Tenth East Coast Operator Algebras Symposium" (2012)

Professional Development Award of the University of Tennessee, Knoxville (2009, 2011 and 2013)

Principal Investigator, NSF award "Subfactors and noncommutative ergodic theory" (2005-2008)

Visiting position at the Henri Poincare Institute, Paris (Spring 2011)

Visiting position at the Institute of Mathematics of the Romanian Academy (Summers 2009, 2010, 2012, 2014, 2016)

UCLA Graduate Division Edwin Pauley **Fellowship** (1998-2003)

Traian Lalescu National Award of the University of Bucharest, 1997

National Romanian Bursary for Exceptional Students in Mathematics 1996-1998

Honor Diploma for exceptional results in mathematics competitions, conferred by the Romanian Mathematics Society, 1995

First Prize at the National Mathematics Olympiad of Romania, 1993 and 1995

Silver Medal at the Balkan Mathematics Competition, Novisad, Yugoslavia, 1994

Second Prize at the National Mathematics Olympiad of Romania, 1991 and 1992

Publications

(PDF's available online at <http://www.math.utk.edu/~nicoara/papers.html>)

A primeness condition for commuting squares of matrix algebras, **Journal of Operator Theory**, Vol. 55 (2006), p. 295-310

On the finiteness of the number of N -dimensional Hopf C^ -algebras*, **Proceedings of the 20th Conference on Operator Theory**, Theta 2006, p. 157-170

Quantum groups and Hadamard matrices (jointly with T. Banica), **Pan-American Mathematical Journal**, Volume 17 (2007), Number 1, 1-24

On II_1 factors arising from 2-cocycles of w -rigid groups (jointly with S. Popa and R. Sasyk), **Journal of Functional Analysis**, 242 (2007), 230-246

Continuous families of hyperfinite subfactors with the same standard invariant (jointly with D. Bisch and S. Popa), **International Journal of Mathematics**, 18 (3) (2007)

Maximal Abelian $$ -algebras of the 6×6 matrices* (jointly with K. Beauchamp), **Journal of Linear Algebra and Applications**, 428 (2008), 1833-1853

Subfactors and Hadamard matrices, **Journal of Operator Theory**, Volume 64, Issue 2 (2010), 453-468

Limit points of commuting squares, **Indiana University Mathematics Journal**, Volume 60 (2011)

A finiteness result for commuting squares with large relative commutant, **Transactions of the AMS**, Volume 364 (2012), 3685 - 3698

Twisted commuting squares (jointly with J. White), **International Journal of Mathematics**, Volume 24 (2013), Issue 5

The defect of a group-type commuting square (jointly with J. White), **Revue Roumaine Math.**, Issue 2 (2014)

Analytic deformations of group commuting squares and complex Hadamard matrices (jointly with J. White), **Journal of Functional Analysis**, Volume 272(8) (2017).

A finiteness result for circulant core complex Hadamard matrices (jointly with C. Worley), **Linear Algebra and its Applications**, Vol. 571 (2019).

Second order deformations of group commuting squares and Hadamard matrices (jointly with J. White), **Proceedings of the AMS**, Vol. 148 (2020).

Group actions and complex Hadamard matrices (jointly with N. Geist, A. Laclair and A. Wintenberg), preprint

Bismash product commuting squares (jointly with I. Francis and C. Worley), preprint

On the structure of the Moduli Space of Commuting Squares around the Fourier Spin Model (jointly with S. Hopkins), preprint

A finiteness result for complex Hadamard matrices in MASAs (jointly with S. Hopkins), preprint

Selected Talks

Analytic Deformations of Group Commuting Squares, **AMS Spring Southeastern Sectional Meeting**, Nashville 2018

Commuting Squares, Groups and Hadamard Matrices, **The Operator Algebras and Operator Theory Colloquium of the Institute of Mathematics of the Romanian Academy**, Bucharest 2016

Hadamard Matrices and Quantum Teleportation, **The Junior Math Colloquium of the University of Tennessee**, Knoxville 2015

Deformations of Group Commuting Squares and Hadamard Matrices, **Fall Southeastern AMS Sectional Meeting**, Memphis 2015

The Defect of a Group-type Commuting Square, **The 24th International Conference on Operator Theory**, Timisoara 2014

Twisted Commuting Squares, **The 24th International Conference on Operator Theory**, Timisoara 2012

Isolation results for Subfactors and Commuting Squares, **The Fourth European Union Non-Commutative Geometry Annual Meeting**, Bucharest 2011

Deformations of Commuting Squares, **The Seventh Congress of Romanian Mathematicians**, Brasov 2011

Google's Secret, **The Junior Math Colloquium of the University of Tennessee**, Knoxville 2010

Finiteness Results for Commuting Squares, **Shanks Workshop on Subfactors and Fusion Categories**, Vanderbilt University, Nashville 2010

Large Relative Commutant Commuting Squares, **The Subfactor Seminar**, Vanderbilt University, 2009

Isolation Results for Commuting Squares, **The Monthly Colloquium of the Institute of Mathematics of the Romanian Academy**, Bucharest 2009

Continuous Families of Commuting Squares, **The 22nd International Conference on Operator Theory**, University of Timisoara, Romania 2008

Subfactors and Hadamard Matrices, **Fields Institute Thematic Program on Operator Algebras**, University of Toronto, Canada 2007

Subfactors and Hadamard Matrices, **The Von Neumann Algebras Conference**, University of Sibiu, 2007

Continuous Families of Hyperfinite II_1 Factors with the same Standard Invariant, **The 21st International Conference on Operator Theory**, University of Timisoara, Romania 2006

Continuous Families of II_1 Factors with the same Standard Invariants, **The Great Plains Operator Theory Symposium**, Iowa University, 2006

On II_1 Factors Arising from 2-Cocycles of w -rigid Groups, **Operator Algebras and Mathematical Physics International Conference**, IMAR, Romania 2005

Some finiteness results for commuting squares of matrix algebras, **The Great Plains Operator Theory Symposium**, University of Central Florida, 2005

On II_1 Factors Arising from 2-Cocycles of w -rigid Groups, **The Third Spring Institute on Non-Commutative Geometry and Operator Algebras**, Vanderbilt University, Nashville 2005

A rigidity result for irrational rotation HT factors, Special Session *Von Neumann Algebras and Non-Commutative Ergodic Theory* of the **AMS Meeting**, Vanderbilt University, Nashville 2004

Finiteness results for commuting squares of matrix algebras, **East Coast Operator Algebras Symposium**, US Naval Academy, Annapolis, 2004

Finiteness results for commuting squares of matrix algebras, **The 20th International Conference on Operator Theory**, University of Timisoara, Romania 2004

A rigidity result for irrational rotation HT factors, **Great Plains Operator Theory Symposium**, 2004

Service and Synergistic Activities

Research Mentor for three UT undergraduate students through the UT Knoxville Math Lab (2024 - ongoing).

Chair of the Undergraduate Committee for Math Majors/Minors/Honors (2024)

Chair of the UT Mathematics Scholarship Committee (2024)

Research Mentor for six UT undergraduate students and two high school students (2014 - 2022). Three of these students won Goldwater Scholarships (Adam Laclair 2015, Ian Francis 2016, Andrew Wintenberg 2017). Our work resulted in two preprints.

Director of the Math Honors Program (2012 - 2023).

Mathematics instructor for Tennessee Governor's School in Science and Engineering (2016 - 2024).

Instructor for the Art of Problem Solving *Olympiad Geometry* and *Worldwide Online Olympiad Training* online courses (2016 - 2024)

Research Mentor for two Vanderbilt undergraduate students, (2005 - 2006). Our work resulted in a paper published in the *Journal of Linear Algebra and Applications*.

Doctoral thesis supervisor for four graduate students at the University of Tennessee Knoxville.

Undergraduate thesis supervisor for five UT Math Honors undergraduate students.

Mentor for a *Computer Science Senior Design* team of three undergraduate students at UT, Spring 2012.

Member of the University of Tennessee *Goldwater Scholarship Committee*, 2010 - 2019.

Trainer of the *Putnam Competition* and *Virginia Tech Mathematics Competition* Teams of the University of Tennessee Knoxville (2007 - 2016) and of Vanderbilt University (2004 - 2007)

Co-organizer of the *Special Session on von Neumann Algebras and Free Probability* at the *Southeastern Sectional American Mathematical Society Meeting* in Knoxville, March 2014.

Organizer of the *Tenth East Coast Operator Algebras Symposium* at the University of Tennessee Knoxville, Fall 2012.

Co-organizer of the *Special Session on von Neumann Algebras* at the *Joint American Mathematical Society Meeting* in New Orleans, January 2011.

Co-organizer of the *Special Session on von Neumann Algebras* at the *Joint American Mathematical Society Meeting* in Washington, DC, January 2009

Journal reviewer for the *Journal of Operator Theory*, *Proceedings of the American Mathematical Society* and *Transactions of the American Mathematical Society*

Committee Head and problem writer for the *Tennessee Math Bowl Contest*, 2010. Co-organizer and problem writer of the *Tennessee Math Bowl* and *Fermat II* Contests, 2007 - 2015.

Problem writer for the *National Science Bowl*, 2011.

Member of the *Institute of Mathematics of the Romanian Academy*