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EDUCATION

Ph. D. in Mathematical Physics, University of Chicago, 2004
M.Sci. in Theoretical Physics, West Virginia University, 1999
B. Sci. in Theoretical Physics, “Al. I. Cuza” University Iasi, Romania, 1996
Maitrise, Physics and Mathematics, École Polytechnique, Paris, France, 1995

APPOINTMENTS

2013 – Associate Professor, Mathematics Dept. at Univ. of South Florida, Tampa
2009 – 2013 Assistant Professor, Mathematics Dept. at Univ. of South Florida, Tampa
2009 – Affiliate Member, T-4 group at Los Alamos National Laboratory
2006 – 2009 Director’s Postdoctoral Fellow, Los Alamos National Laboratory
2004 – 2006 Research Officer, Physics Department, Columbia University, New York
1999 – 2004 Graduate Research Assistant, J. Franck Institute, University of Chicago

AWARDS/FELLOWSHIPS

- US Army STEM Mentor Award
Army Education Outreach Program, 2016
- American Physical Society Award
The International Brazil-U.S. Professorship/Lectureship Program, 2011-2012
- Leading Young Researcher Award
Centre for Mathematical Research, University of Montreal,
Thematic Year “Probabilistic Methods in Theoretical Physics”, 2008
- Laboratory Director’s Postdoctoral Fellow Award
Los Alamos National Laboratory, 2006
- Gregor Wentzel Prize for Excellence in Teaching nomination
Physics Department, University of Chicago, 2000
- International Award for Eastern European students
George Soros Foundation, 1997
- International undergraduate scholarship
École Polytechnique, Palaiseau (Paris), France, 1994 – 1996
- International undergraduate scholarship (declined)
Lomonosov University, Moscow, Russia, 1991

SYNERGISTIC ACTIVITIES

- July 2016 USF STEM Education Center & US Army Academy of Science Mentor
– High-school student mentored: Roshan Warman
“Cantilever tip dynamics in Atomic Force Microscopy”
(winner of the 2016 Ky Fan AMS award for high-school students)
- July 2015 USF STEM Education Center & US Army Academy of Science Mentor
Course developed: *“Mathematics 360: from problem-solving to proof-writing”*
– High-school student mentored: Ricardo Condori
“Generating functions for 1-dimensional random walks”
– High-school student mentored: Roshan Warman
“Spintronics circuits: the building blocks of spin-based computation”
(Undergraduate Journal of Mathematical Modeling, vol. 7, no. 1, 2016)
- October 2014 Speaker, University of South Florida Mathematics Club
“Analysis on large graphs vs. graphical models of analyticity”
- July 2014 USF STEM Education Center & Army Academy of Science Mentor
Course developed: *“The building blocks of STEM”*
– High-school student mentored: Pranav (Raj) Warman
“A study on the topological properties of large Erdős-Rényi graphs”
– High-school student mentored: Logan White
“Modeling Rocket Flight in the Low-Friction Approximation”
(Undergraduate Journal of Mathematical Modeling, vol. 6, no. 1, 2014)
- August 2011 Speaker, University of South Florida Mathematics Club
“The synchronization phase transition: mathematics and beyond”
- April 2010 Speaker, The Mathematics Honor Society, Florida Epsilon Chapter
2010 Pi Mu Epsilon Annual Induction Ceremony
“Complexity, Disorder, and Life in General”
- September 2009 Speaker, University of South Florida Mathematics Club
“Of Numbers, Computers, and Million-Dollar Prizes”
- Summer 2009 Mentor, Los Alamos National Laboratory Summer Students Program
Graduate student: Charles Martin, Univ. of California at Santa Barbara
“Algorithmic complexity of stability analysis of hybrid systems”
- Summer 2008 Mentor, Los Alamos National Laboratory Summer Students Program
Graduate student: Ferenc Balogh, Concordia University, Montreal
“Studying 2D pattern formation with orthogonal polynomials”
- June 2008 Lecturer, Los Alamos National Laboratory Summer School
“Interface growth in two dimensions: from mathematics to biology and computer science - a physicist's perspective”
- June 2007 Lecturer, Los Alamos National Laboratory Summer School
“Complexity in strongly correlated systems”
- May 2007 INTEL-ISEF (former Westinghouse) Competition
Grand Awards Judge, Physics and Astronomy

GRANTS (12)

- University of South Florida conference grant, co-PI, 2016-2017.

- National Science Foundation, Division of Math. Sciences, proposal no. 1600479, co-PI, 2016-2017.
- University of South Florida Proposal Enhancement Grant, co-PI, 2015-2016.
- National Science Foundation, Division of Physics, proposal no. 1310360, co-PI, 2013-2014.
- National Science Foundation, Division of Math. Sciences, proposal no. 1301675, co-PI, 2013-2014.
- University of South Florida conference grant, co-PI, 2013-2014.
- National Science Foundation, Division of Math. Sciences, proposal no. 1301577, co-PI, 2013-2014.
- University of South Florida Proposal Enhancement Grant, co-PI, 2011-2012.
- American Physical Society travel grant, the International Brazil-U.S. Lectureship Program, PI, 2011.
- National Science Foundation, Division of Math. Sciences, award 1019602, co-PI, 2010-2011.
- University of South Florida conference grant, co-PI, 2009-2010.
- U.S. Dept. of Energy LDRD project 20061449PRD2, Los Alamos National Lab, 2006 – 2008.

SERVICE/PEDAGOGICAL

UNIVERSITY LEVEL

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|-------------|---|
| 2016 – | Faculty Research Council (grant reviewer) |
| 2016 – 2019 | Faculty Senate Member |
| 2015 – | USF Office of National Scholarships (Marshall/Rhodes/Cambridge panelist) |
| 2014 – 2017 | Honors and Awards Council, Faculty Senate |
| 2013 – 2014 | Distinguished University Professor Discipline Committee (Chair for Mathematics) |
| 2010 – 2011 | Distinguished University Professor Discipline Committee (Chair for Mathematics) |

COLLEGE LEVEL

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|-------------|---|
| 2016 – 2018 | College of Arts and Sciences Tenure and Promotion Committee |
| 2016 – 2018 | School of Natural Sciences and Mathematics Tenure and Promotion Committee |
| 2015 – 2016 | STEER grant liaison for the USF-HCC FUSE project |
| 2013 – 2015 | College of Arts and Sciences Instructor Promotion Committee |

DEPARTMENTAL LEVEL (MATHEMATICS)

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| 2016 – 2017 | Calculus Teaching Task Force (ad-hoc) |
| 2015 – 2017 | Graduate Studies Committee |
| 2015 – 2016 | Leader, Analysis Seminar |
| 2015 – 2016 | Undergraduate Studies Textbook Selection Subcommittee (ad-hoc) |
| 2014 – 2016 | Advisory Committee |
| 2014 – 2015 | Mathematics Dept. and Florida Center for Cybersecurity (FC ²) Hiring Committee |
| 2014 – 2016 | Graduate Admissions Committee (acting director, Fall 2014) |
| 2013 – 2014 | Lecture Series Committee |
| 2013 – 2014 | Graduate Studies Committee |
| 2011 – 2013 | Undergraduate Studies Committee |
| 2010 – 2011 | Interdisciplinary Committee |
| 2010 – 2011 | Colloquium Committee |

STUDENTS ADVISED (AT USF) (28)

- **Ph.D. Advisor (2):** Lisa Paris (2015 –), Wael Al-Sawai (2014 –)
- **Ph.D. Committee (15):** Maryam Bagherian (2016–), Mathew Green (2015–), Ryan Thurman (2015–), Karl Payne (Civil Engineering, 2014 –), Yang Meng (2014 –), Morgan Mcanally (2014–), Kristina Hilton (2014 –), Xiang Gu (2014 –), Kumar Vijay Garapati (2013 –), Solomon Manukure (graduated 2016), Matt Fleeman (graduated 2016), Otunuga Olusegun (graduated 2014), Lisa De Castro (graduated 2013), Janaka Kosgolla (Civil Engineering, graduated 2012), Adrian Popescu (Physics, graduated 2012)
- **Ph.D. Chair (4):** Yousseff Fassi Fehri (Economics, November 2016), Nam Le (Physics, March 2016), Kevin McCash (Physics, June 2014), Kevin Tatur (Physics, October 2009)
- **M.S. Committee (2):** Josiah Park (graduated 2016), James Klinedist (graduated 2014)
- **Undergraduate Honors Thesis (5):** Kade Cicchella (Physics), Benjamin Stortenbecker (Physics, graduated 2016, went to Notre Dame Univ.), Bryce Hotalen (Electrical Engineering, graduated 2013, went to Qorvo, Inc.), Christeen Bisnath (Mathematics, graduated 2012, went to New Jersey Inst. of Technology), Sean Hollis (Mechanical Engineering, graduated 2011, went to Kennedy Space Center, NASA)

COURSES TAUGHT (AT USF) (27)

- **Lower-level undergraduate (7):** College Algebra, Finite Mathematics, Introduction to Statistics, Calculus I, Calculus II, Calculus III, Differential Equations
- **Upper-level undergraduate (10):** Discrete Mathematics, Introduction to Topology, Vector Calculus, Partial Differential Equations, Symbolic Computations in Mathematics, Complex Variables, Bridge to Abstract Mathematics, Linear Algebra, Introduction to Probability Theory, Intermediate Analysis I
- **Graduate (6):** Methods of Applied Mathematics, Applied Partial Differential Equations, Partial Differential Equations, Applied Complex Analysis, Probability Theory I, Probability Theory II
- **Special-topics graduate (4):** Foundations of Quantum Computing, Equations of Mathematical Physics, Conformal Field Theory, Generalized Optimization and Algebraic Geometry

CONFERENCE ORGANIZER (10)

- [The 32nd South-East Analysis Meeting \(SEAM\) 2016](#), Tampa, March 2016.
- [International Workshop on Complex Analysis and Dynamical Systems VI](#), Israel, May 2013.
- [2nd International Workshop on Nonlinear and Modern Mathematical Physics](#), Tampa, March 2013.
- [International Workshop on Facets of Integrability: Random Patterns, Stochastic Processes, Hydrodynamics, Gauge Theories and Condensed Matter Systems](#), Simons Center, January 2013.

- “Applications of complex analysis in mathematical physics and generalized optimization problems”, Special session organizer, [Southeastern AMS Sectional Meeting](#), Tampa, FL, March 2012.
- USF-UCF-UF-Southern Florida College [Florida Analysis Seminar](#), Lakeland, FL, 2011 – 2012.
- [International Workshop on Complex Analysis and Mathematical Physics](#), Chillan, Chile, Dec. 2010.
- [Workshop on Gravitational Lensing](#), University of South Florida, April 2010.
- [International Workshop on Classical and Quantum Information Theory](#), Center for Nonlinear Studies at Los Alamos National Laboratory, Santa Fe, NM, March 2008.
- [Los Alamos National Laboratory-UNM-ASU-AZU Conference](#), Albuquerque, NM, February 2008.

EDITORIAL ACTIVITY (25)

- Reviewer for **21** journals: *Journal of Physics A*; *Journal of Physics B*; *Physics Letters A*; *Physical Review Letters*; *Physical Reviews B*; *Reviews of Modern Physics*; *Journal of Statistical Physics*; *Journal of Statistical Mechanics*; *Advances in Analysis and Mathematical Physics*; *Applications and Applied Mathematics*; *Annales Academiae Scientiarum Fennicae Mathematica*; *Computational Methods and Function Theory*; *Constructive Approximations*; *Chaos, Solitons and Fractals*; *European Journal of Physics C*; *Entropy*; *Journal of Integrable Systems*; *Journal of Hydraulic Research*; *Journal of Mathematics and Statistics*; *Symmetry*; *American Journal of Applied Sciences*.
- Managing editor, *Analysis and Mathematical Physics*.
- Associate editor, *Journal of Stochastic Analysis and Applications*.
- Book reviewer, SpringerBriefs series of Springer Verlag.
- Grant reviewer for the European Science Foundation and the Israel Science Foundation.

SELECTED PRESENTATIONS

WORKSHOPS/CONFERENCES (PAST 10 YEARS)

- Research program on [Mathematical Physics](#), *Institut Mittag-Leffler, Stockholm, Sweden*, June 2017 (upcoming)
- Workshop on [Interface dynamics and transport phenomena](#) at the 11th AIMS conference on Dynamical Systems, Differential Equations and Applications, *Orlando, Florida*, July 2016
- Society for Industrial and Applied Mathematics conference on [Analysis of Partial Differential Equations](#), *Scottsdale, Arizona*, December 2015
- Israel Science Foundation research workshop on [Non-Hermitian Random Matrices: 50 Years After Ginibre](#), *Yad Hashmona, Israel*, October 2014

- American Institute of Mathematical Sciences conference on [Dynamical Systems and Differential Equations](#), *Madrid, Spain*, July 2014
- Conference on [Complex Analysis and Dynamical Systems VI](#), *Bar-Ilan University and Galilee Research Center for Applied Mathematics of ORT Braude College, Israel*, May 2013 (trip cancelled)
- Research program on [Complex analysis and integrable systems](#), *Institut Mittag-Leffler, Stockholm, Sweden*, Fall 2011
- Workshop on [Modeling and Novel Computational Methods of Complex Analysis](#), *International Conference on Industrial and Applied Mathematics, Vancouver, Canada*, July 2011
- Workshop on [Applications of Dynamical Systems](#), *Conference of the Society for Industrial and Applied Mathematics, Snowbird, Utah*, May 2011
- Conference on [Integrable and stochastic Laplacian growth in modern mathematical physics](#), *Pacific Institute for Mathematical Sciences, Banff International Research Station*, November 2010
- Ohio Section of the American Physical Society Workshop on [Synchronization](#) (plenary speaker), *Ohio Wesleyan University*, October 2009
- Workshop on [Low-dimensional Quantum Field Theories and Applications](#), *Galileo Galilei Institute for Theoretical Physics, Florence, Italy*, September 2008
- Workshop on [Laplacian Growth and Related Topics](#), *Centre for Mathematical Research, Université de Montréal*, August 2008
- Workshop on [Random Matrices, Related Topics and Applications](#), *Centre for Mathematical Research, Université de Montréal*, August 2008
- Workshop on [Complexity, Disorder and Algorithms](#), *Aspen Center for Physics*, June 2008
- Conference on [Quadrature Domains and Laplacian Growth in Modern Physics](#), *Pacific Institute for Mathematical Sciences, Banff International Research Station*, July 2007
- Workshop on [Stochastic Geometry and Field Theory: From Growth Phenomena to Disordered Systems](#), *Kavli Institute for Theoretical Physics, Santa Barbara*, October 2006

INVITED SEMINARS/ LECTURES

- Brown University, Lefschetz Center for Dynamical Systems Seminar, October 2016
“Weak resolution of singularities in free-boundary problems of hyperbolic type”
- Caltech, Analysis Seminar, February 2012
“Remarks on an over-determined boundary-value problem in potential theory”
- Universidad Federal de Pernambuco a Recife Physics Colloquium, August 2011
“Of bubbles, growth, and singularities: how to tell when we are near a critical point”

- Universidad Federal de Pernambuco a Recife Physics Department, August 8-11, 2011
Lecture series on "Integrable hierarchies and stochastic Loewner evolution"
Series developed under the APS - Brazilian Physical Society lectureship/professorship program
- Washington University in Saint Louis Physics Colloquium, March 2011
"The complexity of critical phenomena - from mesoscopics to nonlinear optics"
- University of Central Florida Analysis Seminar, March 2011
"Shocks and Stokes in viscous flows"
- University of Indiana at Indianapolis Analysis Seminar, February 2011
"Shocks and Stokes in viscous flows"
- The first Florida Analysis Seminar at Southern Florida College, January 2011
"Integrability, from freak waves to quantum billiards"
- University of South Florida Statistics Department Colloquium, November 2010
"Universal limits of nonlinear measure redistribution processes and their applications"
- University of South Florida Physics Department Colloquium, February 2010
"Random-Matrix Theory in Physics: from Gauge Theories to Disordered Electronic Systems"
- University of Louisiana Physics Department Colloquium, February 2009
"Pattern formation in two dimensions"
- Aspen Workshop Seminar, Aspen Center for Physics, June 2008
"Solvable Lattice Models and Yang-Baxter Algebras"
- Quantum Lunch Seminar, Theoretical Division, LANL, April 2008
"Quantum information processing with cold Fermi gases in the fast pairing regime"
- Vanderbilt University, Analysis Seminar, April 2008
"Planar Harmonic Growth with Orthogonal Polynomials"
- Caltech, Analysis Seminar, March 2008
"Harmonic Growth in 2D via Biorthogonal Polynomials, a.k.a. Laplacian Growth"
- Louisiana State University, Analysis Seminar, March 2008
"Harmonic Growth in 2D via Biorthogonal Polynomials"
- Los Alamos National Laboratory, CNLS Seminar, January 2008
"Nonlinear quantum dynamics and information theory: cats and kets"
- Wayne State University, Mathematics Department Colloquium, November 2007
"Harmonic Growth in 2D via Biorthogonal Polynomials"
- University of New Mexico, Electromagnetism and Waves Seminar, September 2007
"Stochastic Loewner Equation and Critical Phenomena in 2D"
- Center for Nonlinear Studies Seminar, Los Alamos National Laboratory, June 2007
"Large deviations, weak convergence, and all that"

PUBLICATIONSBOOKS

- 1) "Classical and Stochastic Laplacian Growth"
with Björn Gustafsson and Alexander Vasiliev,
(ISBN 978-3-319-08286-8, Birkhäuser, Springer Verlag)

BOOK CHAPTERS

- 2) "A linear path toward self-synchronization: Analysis of the fully locked transition of the Kuramoto model"
D. Roberts and R. Teodorescu, in INDS'08 workshop proceedings, Shaker Verlag, Germany, 2009.
- 3) "Coherent oscillations in cold Fermi atoms and their applications"
in *Leading-Edge Superconductivity Research Developments*, ISBN 978-1-60456-017-6, 2008.

JOURNAL ARTICLES

- 4) "A note on analytical models for the localization phase transition in 2D"
B. Stortenbecker and R. Teodorescu, under review at the Physical Review Letters.
- 5) "A free boundary problem associated with the isoperimetric inequality"
Ar. Abanov, C. Beneteau, D. Khavinson, and R. Teodorescu, <http://arXiv:1601.03885>,
submitted to the Journal of the American Mathematical Society
- 6) "Efficient algorithms for topological inference on random graphs"
I. Teodorescu, R. Teodorescu, and Pranav Warman, <http://arXiv:1512.09193>.
- 7) "Braid group representations and cold Fermi gases in the fast pairing regime"
B. Hotalen and R. Teodorescu, <http://arXiv:1501.00132> [math-ph].
- 8) "Topological constraints in geometric deformation quantization on domains with multiple boundary components"
<http://arXiv:1412.7716> [math-ph].
- 9) "An Overdetermined Problem in Potential Theory"
D. Khavinson, E. Lundberg, and R. Teodorescu, Pacific Journal of Mathematics, **265** 1 (2013) 85.
- 10) "Universal limits of nonlinear measure redistribution processes and their applications"
R. Teodorescu, Journal of Problems of Nonlinear Analysis in Engineering Systems (2012).
- 11) "Viscous shocks in Hele-Shaw flow and Stokes phenomena of the Painlevé I transcendent"
S-Y. Lee, R. Teodorescu and P. Wiegmann, Physica D 240, no. 13, 1080-1091 (2011).
- 12) "Weak solution of the Hele-Shaw problem: shocks and viscous fingering"
S-Y. Lee, R. Teodorescu and P. Wiegmann, JETP Letters 92, no. 2, (2010) 91.

- 13) "[Lemniscates are destroyed by Laplacian growth](#)"
D. Khavinson, M. Mineev-Weinstein, M. Putinar and R. Teodorescu, *Mathematical Research Letters* **17** 2 (2010) 337.
- 14) "[Non-equilibrium thermodynamics and topology of currents](#)"
V. Chernyak, M. Chertkov, S. Malinin and R. Teodorescu, *J. of Stat. Phys.* **137** 1 (2009) 109.
- 15) "[Shocks and finite-time singularities in Hele-Shaw flow](#)"
S-Y. Lee, R. Teodorescu and P. Wiegmann, *Physica D: Nonlinear Phenomena* 238 (2009) 1113.
- 16) "[Belief Propagation and Loop Series on Planar Graphs](#)"
M. Chertkov, V. Chernyak and R. Teodorescu, *J. Stat. Mech.* (2008) P05003.
- 17) "[Random matrix theory in 2D, Laplacian growth, and operator theory](#)"
M. Mineev-Weinstein, M. Putinar and R. Teodorescu, *J. Phys. A: Math. Theor.* 41 (2008) 263001
(invited review article).
- 18) "[A linear path toward synchronization: Anomalous scaling in a new class of exactly solvable Kuramoto models](#)"
D. Roberts and R. Teodorescu, issue on *Nonlinear Dynamics and Chaos* of the *Eur.Phys.J.*, (2008).
- 19) "[Relaxation of nonlinear oscillations in BCS superconductivity](#)"
R. Teodorescu, *J. of Phys. A: Math. Gen.* **39** (2006) 10363.
- 20) "[Generic critical points of normal matrix ensembles](#)"
R. Teodorescu, *J. of Phys. A: Math. Gen.* **39** (2006) 8921.
- 21) "[Unstable Fingering Patterns of Hele-Shaw Flows as a Dispersionless Limit of the Kortweg-de Vries Hierarchy](#)"
R. Teodorescu, A. Zabrodin and P. B. Wiegmann, *Phys. Rev. Lett.* **95** 4 (2005) 044502.
- 22) "[Normal matrix ensemble as a growth problem](#)"
R. Teodorescu, E. Bettelheim, O. Agam, A. Zabrodin and P. B. Wiegmann, *Nucl. Phys. B* **704** (2005) 407.
- 23) "[Semiclassical evolution of the spectral curve in the normal random matrix ensemble as Whitham hierarchy](#)"
R. Teodorescu, E. Bettelheim, O. Agam, A. Zabrodin and P. B. Wiegmann, *Nucl. Phys. B* **700** (2004) 521.