

Dr. Erwin Suazo

The University of Texas Rio Grande Valley
School of Mathematical and Statistical Science
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Education

PhD, Arizona State University, 2009.
Major: Mathematics

MS, Arizona State University, 2004.
Major: Mathematics

Employment History

Academic - Administrative Assignments

Principal Investigator, Closed and approximate solutions to equations on wave propagation phenomena. Agency: Simons Foundation. Collaboration Grant for Mathematicians., University of Texas, Rio Grande Valley. (September 1, 2015 - August 31, 2019).

Principal Investigator, Faculty and Undergraduate Research Student Teams (FURST). Agency: NSF DMS #1620196 (January 1, 2017-December 31, 2018), University of Texas, Rio Grande Valley. (January 1, 2017 - December 31, 2018).

Principal Investigator, (Co-PI Dr. Z. Qiao) Wave structures for nonlinear partial differential equations and their applications in physics. College of Sciences Research Enhancement Seed Grants Program., University of Texas, Rio Grande Valley. (June 1, 2016 - November 30, 2017).

Principal Investigator, Dynamics of Evolution Equations Modeling Wave Phenomena Summer REU. Agency: Mathematical American Association (MAA)., University of Puerto Rico, Mayaguez. (January 15, 2015 - July 15, 2015).

Academic - Post-Secondary

Associate Professor, The University of Texas, Rio Grande Valley. (September 1, 2019 - Present).

Assistant Professor, School of Mathematics and Statistical Sciences, University of Texas, Rio Grande Valley. (September 1, 2015 - August 31, 2019).

Assistant Professor (Catedratico Asociado in tenure track), University of Puerto Rico. (August 15, 2014 - July 15, 2015).

Postdoctoral Research Scholar, Arizona State University. (June 15, 2013 - May 30, 2014).

Assistant Professor (Catedratico Auxiliar in tenure track), University of Puerto Rico, Mayaguez. (January 15, 2010 - May 30, 2013).

Awards and Honors

Academic visit: •Summer School, Cadiz. (June 2017).

Travel grant (Housing and Lodging), Institut des Hautes Etudes Scientifiques (IHES), Bures-sur-Yvette, France, \$1500 (Approx). (2016).

•Academic Visit to IHES institute, Orsay, France (July 16- July 26, 2016)., IHES Institute. (July 16, 2016).

Competitive research release, College of Arts and Sciences, UPRM; Research release of 3 credits during Spring 2015, Fall 2014, Spring 2013, Fall 2012, Spring 2012. (2015).

Early career travel award, SIAM Conference on Analysis of Partial Differential Equations, Scottsdale, Arizona, Total amount: \$650. (2015).

Creator and President of UMaRch Puerto Rico 2015, Creator and President of UMaRch Puerto Rico 2015: Undergraduate Mathematics Research Conference, funded by NSF grant DMS-0846477. <http://www.uprm.edu/umarch2015>. (March 2015).

Award for Excellence in Research, Department of Mathematical Sciences, UPRM, December 2014; one award per year based on publications, grants, and successful graduation of masters students. (December 2014).

Selected as a mentor, Selected as a mentor for the interdisciplinary NSF-funded REU “Research Experiences for Undergraduates in Reconfigurable and Multifunctional Soft Materials at UPRM” (Dr. U. Cordova-Figueroa, PI). <http://softmatter.uprm.edu/people/erwin-suazo/>. (2014).

Travel Grant, IPAM, UCLA; to attend the Mathematical Analysis of Turbulence Workshop, \$750. (2014).

Undergraduate research mentor, SACNAS; Undergraduate research mentor of Roberto Perez, who was awarded first place in poster presentations in applied mathematics at SACNAS 2014. (2014).

Travel Grant, NSF to attend the Harmonic Analysis & Partial Differential Equations: Recent Developments & Future Directions, A conference in honor of C.E. Kenig; \$1,000. (September 2014).

Competitive, merit-based salary and title promotion, Dept. of Mathematical Sciences, UPRM; Competitive, merit-based salary and title promotion “Catedratico Auxiliar” to “Catedratico Asociado” status ahead of tenure schedule. (July 2014).

•Academic visit to Uniatlantico, Barranquilla, Colombia (July 11- 18, 2014, Uniatlantico. (July 11, 2014).

Travel grant DMS-1440664, NSF; to attend the International Conference on Partial Differential Equations (May 28 - June 1, 2014, Novacella, Italy). \$700. (May 2014).

Academic visit, Max Planck Institute of Optics: Lab on Bose Einstein Condensates, Munich, Germany. (May 27, 2014).

Travel Grant, University of Arizona; to present a poster on Workshop on Mathematical Methods and Models in Laser Filamentation (University of Montreal, Canada). \$1,200. (March 2014).

Travel Grant, AMS-Simons for the 2013 Mathematical Congress of the Americas in Guanajuato, Mexico (August 2013). \$1,700. (August 2013).

Ibero-America Young Professors and Researchers Programme, Santander Universidades (Spring 2012), \$7,500. (2012).

Travel Grant, AMS-Simons Travel Grant (research-related travel grant, a total of 60 awards in USA) (2012-2014). \$4,000. (2012).

Travel Grant, Brown University; \$650. (November 2012).

•Academic Visit to Uninorte, Barranquilla, Colombia (Nov 11 - 25, 2012)., Uninorte, Barranquilla, Colombia. (November 11, 2012).

•Academic Visit to Universitat de Barcelona, Barcelona, Spain (March 18 - April 10, May 20 - June 6 and July 20 - August 8, 2012)., Universitat de Barcelona. (March 18, 2012).

Citation of two papers by the book: Mathematical Models in Population Biology and Epidemiology by Brauer and Castillo-Chavez (Springer), 2011. (2011).

Travel Awards, U. Minnesota, University of Texas Pan American and U. Wyoming; Total \$2,800. (2010).

•Academic Visit to Institut Henri Poincaré, Paris, France (June 22 - July 6, 2009)., Institute Henri Poincare, Paris. (June 22, 2009).

Travel Awards, CLAY Institute (Zürich, Switzerland) and U. Autonoma Madrid (El Escorial, Spain); total \$3,000. (2008).

Travel Grants, Arizona State University from 2003 to 2008; Total \$4,000. (2008).

Development Activities Attended

"Flipped Classroom," Center for teaching excellence. (January 30, 2018).

"B3 Workshop: Knowing Your Students," The Center for Teaching Excellence. (December 13, 2017).

Conference Attendance, "Access Equity in Online Learning: Strategies for Fully Including Deaf & Hard of Hearing Students," Excellence in Online Learning Conference 2017. (March 10, 2017).

Conference Attendance, "How to Create Online/Flipped 'Screen Capture' Video for Free," Excellence in Online Learning Conference 2017. (March 10, 2017).

Conference Attendance, "Panel Discussion: Convergence of Minds in Accessibility," Excellence in Online Learning Conference 2017. (March 10, 2017).

Conference Attendance, "What Makes This the Year of Access in Online Learning?," Excellence in Online Learning Conference 2017. (March 10, 2017).

New Faculty Support Program, "Enhancing Your Teaching Effectiveness." (September 1, 2015 - August 30, 2016).

New Faculty Support Program, "Faculty Portfolio Tool Training." (September 1, 2015 - August 30, 2016).

New Faculty Support Program, "Getting Funded - Opportunities & Strategies." (September 1, 2015 - August 30, 2016).

New Faculty Support Program, "Getting the Mentoring You Need." (September 1, 2015 - August 30, 2016).

New Faculty Support Program, "Grant Writing - Workshop A." (September 1, 2015 - August 30, 2016).

New Faculty Support Program, "Managing Your Time - Teaching, Research, and Service." (September 1, 2015 - August 30, 2016).

New Faculty Support Program, "Online Learning Tools & Strategies." (September 1, 2015 - August 30, 2016).

New Faculty Support Program, "Preparing for Your 1st-year Review- Expectations & Dossier Preparation." (September 1, 2015 - August 30, 2016).

New Faculty Support Program, "Supporting Faculty & Student Success." (September 1, 2015 - August 30, 2016).

Summer School, "Nonlinear Waves 2016: Summer School, IHES, Bures-sur-Yvette, France (18-29 July 2016), 2016.," IHES, Bures-sur-Yvette, France. (July 18, 2016 - July 29, 2016).

Workshop, "V Latin American Congress of Mathematicians (CLAM)," Barranquilla, Colombia. (July 11, 2016 - July 15, 2016).

Workshop, "New challenges in PDE: Deterministic dynamics and randomness in high and infinite dimensional systems, Workshop in Mathematical Sciences Research Institute (MSRI), Berkeley," MSRI, Berkeley, CA, USA. (October 2015).

Workshop, "Introductory Workshop: Randomness and long time dynamics in nonlinear evolution differential equations, Workshop in Mathematical Sciences Research Institute (MSRI), Berkeley, August 2015.," MSRI, Berkeley, CA, USA. (August 2015).

New Faculty Academic Orientation, "Online Learning & Teaching Technology." (August 18, 2015).

Workshop, "Workshop: Practical Approaches to Engaged Teaching and Learning." (August 18, 2015).

New Faculty Academic Orientation, "Academic & Institutional Resources and Support Services." (August 17, 2015).

New Faculty Academic Orientation, "Campus Safety." (August 17, 2015).

New Faculty Academic Orientation, "Faculty and Course Information Systems." (August 17, 2015).

New Faculty Academic Orientation, "Getting to know your area and your students," UTRGV. (August 17, 2015).

New Faculty Academic Orientation, "Getting to Know Your Institution: UTRGV in Context." (August 17, 2015).

New Faculty Academic Orientation, "Information Technology." (August 17, 2015).

Workshop, "DC Summer workshop on PDEs, George Washington University, July 2015," George Washington University. (July 2015).

Conference Attendance, "Joint Mathematics Meeting 2015, San Antonio, January 2015," AMS, MAA, San Antonio, Texas, USA. (January 2015).

Conference Attendance, "Blackwell-Tapia Conference (Minority and Undergraduate-Graduate Research) (November 2012, Institute for Computational and Experimental Research in Mathematics (ICERM), Brown University, ICERM, Brown University, Providence, RI, USA. (November 2012).

Conference Attendance, "2012 Symposium on Collaborative Initiative (October 2012, UPRM, Mayagüez, PR, USA)," UPRM, Mayaguez, Puerto Rico, USA/Puerto Rico. (October 2012).

Workshop, "Taller Academia de Investigación: Tools for monitoring and identifying research funds (September 2012, CEP, UPRM, Mayagüez, PR, USA)," CEP, UPRM, Mayaguez, Puerto Rico, Puerto Rico/USA. (September 2012).

Workshop, Universitat Politecnica de Catalunya (UPC), Barcelona, Spain. (July 17, 2012 - July 18, 2012).

Summer School, "Summer School On Conservation Laws and Applications, Rocky Mountain Mathematics Consortium (June 22-July 2, 2012, University of Wyoming, Laramie, WY)," Rocky Mountain Mathematics Consortium, Laramie, WY, USA. (June 22, 2012 - July 2, 2012).

Workshop, "Workshop on Interactions Between Dynamical Systems and Partial Differential Equations (JISD 2012) (May 28-June 1, 2012, Universitat Politecnica de Catalunya (UPC), Barcelona, Spain)," Universitat Politecnica de Catalunya (UPC), Barcelona, Spain. (May 28, 2012 - June 1, 2012).

Workshop, "Workshop in Non-linear Waves and Dispersion (June 22-June 26, 2009, Institut Henri Poincaré, Centre Emile Borel, Paris)," Institut Henri Poincaré, Centre Emile Borel, Paris, France. (June 22, 2009 - June 26, 2009).

Summer School, "Clay Mathematics Institute Summer School, Evolution Equations (June 23-July 18, 2008, Eidgenössische Technische Hochschule, Zürich, Switzerland)," Clay Mathematics Institute; Eidgenössische Technische Hochschule, Zurich, Switzerland. (June 23, 2008 - July 18, 2008).

Workshop, "Great Plains Operator Theory Symposium (May 2007, Lincoln, NE)," Lincoln, Nebraska, USA. (May 2007).

Workshop, "Great Plains Operator Theory Symposium (May 2006, Iowa City, IA)," Iowa City, Iowa, USA. (May 2006).

Summer School, "Summer School on Geometric and Topological Methods for Quantum Field Theory (June 19-July 15, 2005, Villa De Leiva, Colombia)," Villa de Leiva, Colombia. (June 19, 2005 - July 15, 2005).

Conference Attendance, "Joint AMS (2004, Phoenix, AZ)," AMS, Phoenix, AZ, USA. (January 2004).

TEACHING

Teaching Experience

The University of Texas Rio Grande Valley

MATH 1314, College Algebra, 1 course.
MATH 2412, Precalculus, 1 course.
MATH 2413, Calculus I, 4 courses.
MATH 2414, Calculus II, 4 courses.
MATH 3341, Diff Equations, 6 courses.
MATH 3345, Linear Optimization, 2 courses.
MATH 3350, Intro to Math Proof, 1 course.
MATH 4344, Boundary Value Problems, 1 course.
MATH 4346, Integral Transforms, 1 course.
MATH 4390, Math Project, 2 courses.
MATH 6327, Math Modeling with Technology, 3 courses.
MATH 6353, Analysis II, 2 courses.
MATH 7301, Thesis II, 1 course.

Non-UTRGV Courses Taught

Arizona State University
, Calculus for Engineers (Fall 2008, Fall 2007).
Arizona State University
, Calculus for Business II (Spring 2007, Fall 2006).
Arizona State University
, College Algebra (Summer 2007).
Arizona State University
, Calculus for Business I (Spring 2006, Fall 2005).
Arizona State University
, Finite Mathematics (Grader) (Summer 2006).
Arizona State University
, College Algebra (Spring 2005, Fall 2004).
Arizona State University
, Advanced Calculus and Finite Mathematics (Grader) (Spring 2003).
Arizona State University
, Mathematical Structures (Grader) (Spring 2003).
University of Puerto Rico, Mayaguez
MATE 3000, Finite Mathematics (Fall 2010).
University of Puerto Rico, Mayaguez
MATE 3005, Precalculus I and II (Spring 2010).
University of Puerto Rico, Mayaguez
MATE 3021, Calculus for Biologists (Spring 2012).
University of Puerto Rico, Mayaguez
MATE 3171, Precalculus I (Spring 2011, Fall 2010, Spring 2010).
University of Puerto Rico, Mayaguez
MATE 3172, Precalculus II (Spring 2011).
University of Puerto Rico, Mayaguez
MATE 4009, Ordinary Differential Equations (Spring 2013).
University of Puerto Rico, Mayaguez
MATE 4020, Partial Differential Equations and Fourier Series (Fall 2014, Spring 2013).
University of Puerto Rico, Mayaguez
MATE 4950, Undergraduate (Research) Seminar (Fall 2014, Spring 2013).

University of Puerto Rico, Mayaguez
MATE 4990, Undergraduate Research (Fall 2012).
University of Puerto Rico, Mayaguez
MATE 6677, Introduction of Partial Differential Equations (Fall 2014, Fall 2011).
University of Puerto Rico, Mayaguez
MATE 6678, Special Topics of Partial Differential Equations (Fall 2012).
University of Puerto Rico, Mayaguez
MATE 6695, Special Topics on Analysis: Fourier Analysis (Spring 2012).
University of Puerto Rico, Mayaguez
MATE 6991, Graduate Seminar (Fall 2012).
University of Puerto Rico, Mayaguez
MATE 6992, Graduate (Research) Seminar (Spring 2013).
University of Puerto Rico, Mayaguez
MATE 6999, Thesis (Fall 2014, Spring 2013).

Directed Student Learning

Undergraduate Supervised Research, "On Schroedinger equation with superoscillatory initial data and Burgers equation with variable coefficients," (January 30, 2018 - December 6, 2018)
Elijah Hight, Jose Palacio

Undergraduate Supervised Research, "Stochastic Burgers Equations and Extensions," School of Mathematical and Statistical Science, (July 2, 2018 - August 26, 2018)
Stephanie Flores, Elijah Hight, Everardo Olivares, Jose Palacio

Graduate Supervised Research, "(Southern Methodist University) On explicit solutions for Burgers equation with variable coefficients," School of Mathematical and Statistical Science, (January 30, 2016 - July 15, 2018)
Enrique Pereira

Undergraduate Supervised Research, "Some mathematical methods in optics," School of Mathematical and Statistical Science, (January 30, 2018 - May 10, 2018)
Aaron Moreno

Undergraduate Supervised Research, "On a new symmetry for Burgers equation," School of Mathematical and Statistical Science, (January 30, 2018 - May 10, 2018)
Maricela Lozano

Master's Thesis Committee Chair, "(UTRGV) Coupled telegraph and SIR model of information and diseases," School of Mathematical and Statistical Science, (May 15, 2017)
Jose Galarza

Undergraduate Supervised Research, "(UTRGV) Solutions for a Burgers Equation with Variable Coefficients through Riccati Equation," School of Mathematical and Statistical Science, (January 30, 2017 - May 10, 2017)
Marco Romero

Undergraduate Supervised Research, "(University of Puerto Rico, Mayaguez) On Solutions for Linear and Nonlinear Schrödinger Equations with Variable Coefficients: A Computational Approach," (August 15, 2015 - May 15, 2016)
Natalie Luna, Gabriel Amador, Gerardo Mercado, Kiara Colon

Undergraduate Supervised Research, "(University of Puerto Rico Mayaguez)," School of Mathematical and Statistical Science, (January 15, 2015 - May 15, 2015)
Emmie Roman

Undergraduate Supervised Research, "(University of Puerto Rico Mayaguez)," (January 15, 2015 - May 15, 2015)
Francisco de Jesus Pagan

Master's Thesis Committee Chair, "(University of Puerto Rico, Mayaguez) Explicit solutions for reaction-difussion equations with variable coefficients," School of Mathematical and Statistical Science, (December 15, 2014)
Jessica Trespalacions

Master's Thesis Committee Chair, "(University of Puerto Rico, Mayaguez) On Solutions for nonlinear Schrodinger equation with variable coefficients: Existence and Dynamics," School of Mathematical and Statistical Science, (December 15, 2014)
Jose Escorcía

Undergraduate Supervised Research, "(University of Puerto Rico Mayaguez)," School of Mathematical and Statistical Science, (January 15, 2013 - December 15, 2014)
Roberto Perez

Master's Thesis Committee Member, "(University of Puerto Rico, Mayaguez) Factorización incompleta $IC(\ell, \tau, m)$ por bloques para matrices generadas por métodos "Local Discontinuous Galerkin".," School of Mathematical and Statistical Science, (January 15, 2012 - December 15, 2014)
Carlos Theran

Undergraduate Supervised Research, "(University of Puerto Rico, Mayaguez)," School of Mathematical and Statistical Science, (January 15, 2013 - May 15, 2013)
David Nino

Undergraduate Supervised Research, "(University of Puerto Rico Mayaguez)," School of Mathematical and Statistical Science, (August 15, 2012 - May 15, 2013)
Sebastiani Aguirre

RESEARCH

Published Intellectual Contributions

Book, Chapter in Textbook-New

Acosta-Humaney, P. B., Suazo, E. (2015). Liouvillian Propagators and Degenerate Parametric Amplification with Time-Dependent Pump Amplitude and Phase. In Tost, GO; Vasilieva, O (Ed.), *ANALYSIS, MODELLING, OPTIMIZATION, AND NUMERICAL TECHNIQUES* (vol. 121, pp. 295-307). Springer Proceedings in Mathematics & Statistics. 10.1007/978-3-319-12583-1_21

Conference Proceeding

Suazo, E., Suslov, S. (2018). *An Integral Form of the Nonlinear Schrodinger Equation with Variable Coefficients* (vol. Vol. 2018-August, pp. 1214-1220). Progress In Electromagnetics Research Symposium, PIERS-Toyama 2018 - Proceedings.

Journal Article, Academic Journal

Suazo, E., Suslov, S. K., Kryuchkov, S. I. (2019). Time-Dependent Photon Statistics in Variable Media. *Mathematical Methods in the Applied Sciences*, 42, 5040–5051..
doi.org/10.1002/mma.5285

- Flores, S.*, Hight, E.*, Olivares-Vargas, E.*, Oraby, T., Palacio, J.*, Suazo, E., Yoon, J. (in press). Exact and numerical solution of stochastic Burgers equations with variable coefficients. *Discrete and Continuous Dynamical Systems, Series S*.
- Suazo, E., Pereira, E.**, Trespalacios, J.** (2018). Riccati–Ermakov systems and explicit solutions for variable coefficient reaction–diffusion equations. *Applied Mathematics and Computation*, 329, 278-296.
<https://www.sciencedirect.com/science/article/pii/S0096300318300705>
- Escorcia, J.**, Suazo, E. (2017). Blow-up results and soliton solutions for a generalized variable coefficient nonlinear Schrödinger equation. *Applied Mathematics and Computation*(301), 155-176.
- Suazo, E., Amador, G.* , Colon, K.* , Luna, N.* , Mercado, G.* , Pereira, E.** (2016). On Solutions for Linear and Nonlinear Schrödinger Equations with Variable Coefficients: A Computational Approach. *Symmetry*, 8(6).
- Suazo, E., Koutschan, C., Suslov, S. K. (2015). Fundamental laser modes in paraxial optics: from computer algebra and simulations to experimental observation. *Applied Physics B*.(2015), 1-22. link.springer.com/journal/340
- Suazo, E., Acosta-Humanez, P. B., Kryuchkov, S. I., Suslov, S. K. (2015). Degenerate parametric amplification of squeezed photons: Explicit solutions, statistics, means and variances. *Journal of Nonlinear Optical Physics & Materials.*, 24(02), 1550021..
- Suazo, E., Suslov, S. K., Vega-Guzman, J. (2014). The Riccati system and a diffusion-type equation. *Mathematics*, 2(2), 91-118.
- Acosta-Humanez, P., Suazo, E. (2013). Liouvillian propagators, Riccati equation and differential Galois theory. *JOURNAL OF PHYSICS A-MATHEMATICAL AND THEORETICAL*, 46(45).
 10.1088/1751-8113/46/45/455203
- Mahalov, A., Suazo, E., Suslov, S. K. (2013). Spiral laser beams in inhomogeneous media. *OPTICS LETTERS*, 38(15), 2763-2766. 10.1364/OL.38.002763
- Suazo, E., Suslov, S. K. (2012). SOLITON-LIKE SOLUTIONS FOR THE NONLINEAR SCHRÖDINGER EQUATION WITH VARIABLE QUADRATIC HAMILTONIANS. *JOURNAL OF RUSSIAN LASER RESEARCH*, 33(1), 63-83.
- Suazo, E., Suslov, S. K., Vega-Guzman, J. M. (2011). The Riccati differential equation and a diffusion-type equation. *NEW YORK JOURNAL OF MATHEMATICS*, 17A, 225-244.
- Cordero-Soto, R., Suazo, E., Suslov, S. K. (2010). Quantum integrals of motion for variable quadratic Hamiltonians. *ANNALS OF PHYSICS*, 325(9), 1884-1912.
 10.1016/j.aop.2010.02.020
- Suazo, E. (2009). Models of damped oscillators in quantum mechanics. *Journal of Physical Mathematics*, 1, 27-42.
- Cordero-Soto, R., Lopez, R. M., Suazo, E., Suslov, S. K. (2008). Propagator of a charged particle with a spin in uniform magnetic and perpendicular electric fields. *LETTERS IN MATHEMATICAL PHYSICS*, 84(2-3), 159-178. 10.1007/s11005-008-0239-6
- Suazo, E. (2004). Condiciones de hemicontinuidad para c-correspondencias. 25(2), 139–148.

Presentations Given

- Oraby, T., Flores, S.*, Palacio, J.*, Hight, E.*, Vargas, E.*, Suazo, E., Yoon, J., (October 5, 2018). *Numerical Solution of Stochastic Burgers Equation with Variable Coefficients*, Undergraduate Conference - 2018 SIAM TX-LA annual sectional meeting Louisiana State University in Baton Rouge, LA.
- Flores, S.*, Oraby, T., Palacio, J.*, Hight, E.*, Vargas, E.*, Suazo, E., Yoon, J., (October 5, 2018). *Numerical Solution of Stochastic Burgers Equation with Variable Coefficients*, Undergraduate Conference - 2018 SIAM TX-LA annual sectional meeting Louisiana State University in Baton Rouge, LA.
- Oraby, T., Palacio, J.*, Hight, E.*, Suazo, E., (October 5, 2018). *Persistence of Superoscillations for the Schrodinger Equation with Time-Dependent Quadratic Hamiltonians*, Undergraduate Conference - 2018 SIAM TX-LA annual sectional meeting Louisiana State University in Baton Rouge, LA.
- Palacio, J.*, Hight, E.*, Oraby, T., Suazo, E., (October 5, 2018). *Persistence of Superoscillations for the Schrodinger Equation with Time-Dependent Quadratic Hamiltonians*, Undergraduate Conference - 2018 SIAM TX-LA annual sectional meeting Louisiana State University in Baton Rouge, LA.
- Suazo, E. R., (July 10, 2018). *On closed solutions for inhomogeneous linear and nonlinear Schrodinger equations and " applications to optics*, Colloquium California State University, Fresno in Fresno, California.
- Suazo, E., (March 31, 2018). *On explicit solutions for variable coefficient reaction diffusion equations*, Coastal Bend Mathematics & Statistics Conference Texas A&M Corpus Christi in Corpus Christi, Texas, USA.
- Suazo, E., (March 24, 2018). *On Riccati-Ermakov systems and explicit solutions for variable coefficient reaction diffusion equations*, Texas Differential Equations The University of Texas, San Antonio in San Antonio, Texas.
- Suazo, E., (January 16, 2018). *Lie systems and applications to reaction-diffusion equations*, Joint International Seminar Benemérita Universidad Autónoma de Puebla, Mexico and UTRGV.
- Suazo, E., (July 18, 2017). *"Blow-up results and soliton solutions for a generalized variable coefficient nonlinear Schrödinger equation"*, IV International workshop of nonlinear analysis and partial differential equations in Manizales, Colombia.
- Galarza, J. d. J.**, Oraby, T., Suazo, E. F., (March 31, 2017). *Coupled Telegraph and SIR model of information and diseases*, First COS symposium COS at UTRGV in Edinburg, TX.
- Suazo, E., (March 30, 2017). *"Soliton solutions for a generalized variable coefficient nonlinear Schrödinger equation"*, The Tenth IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory in Athens, GA, USA.
- Suazo, E., (March 4, 2017). *"On Ermakov-Pinney Equation and Soliton Solutions for Partial Differential Equations"*, Texas Differential Equations Conference in College Station, TX, USA.
- Suazo, E., (May 16, 2016). *"Fundamental laser modes in paraxial optics through Riccati-Ermakov systems"*, NSF/CBMS Regional Research Conference on Discrete Painlevé Equations NSF in University of Texas RGV.

- Suazo, E., (April 9, 2016). "*Similarity Transformation Method, Riccati-Ermakov Systems and Explicit Solutions for Variable-Coefficient Linear and Nonlinear Schrödinger Equations*", The Texas 2016 Differential Equations Conference Texas State University, San Marcos.
- Suazo, E., (March 22, 2016). "*Blow-Up Results for a Generalized Variable Coefficient Nonlinear Schroedinger Equation*", PDE and Image Analysis Seminar University of Texas, RGV in University of Texas, RGV.
- Suazo, E., (December 7, 2015). "*Generalized Variable-Coefficient Nonlinear Schroedinger Equation: Explicit Solutions and Finite-Time Blow-Up*", 2015 SIAM Conference on Analysis of Partial Differential Equations, in Scottsdale, Arizona.
- Suazo, E., (November 14, 2015). "*Closed solutions for inhomogeneous linear and nonlinear Schroedinger equation*", Visiting scholars workshop on differential equations and dynamical systems with applications in physics and biology Andes University in Bogota, Colombia.
- Suazo, E., (October 13, 2015). "*Closed solutions for the degenerate parametric oscillator and inhomogeneous nonlinear Schroedinger equation*", Mathematical physics seminar University of Texas, RGV in Edinburg, TX, USA.
- Suazo, E., (October 6, 2015). "*Emerging undergraduate research opportunities on non-autonomous linear and nonlinear Schroedinger equation.*", Soliton seminar University of Texas, RGV in Edinburg, TX, USA.
- Suazo, E., (April 4, 2015). "*Degenerate parametric amplification of squeezed photons: explicit solutions, statistics, means and variances.*", The Ninth IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory in Athens, GA, USA.
- Suazo, E., (March 23, 2015). "*Degenerate parametric amplification of squeezed photons: explicit solutions, statistics, means and variances.*", Conference on Partial Difference Equations in Munich, Germany.
- Suazo, E., (January 10, 2015).). "*Riccati-Ermakov systems and closed solutions for the degenerate parametric oscillator.*", Joint Mathematics Meetings in San Antonio, TX, USA.
- Suazo, E., (May 28, 2014). "*Closed solutions for the degenerate parametric oscillator and inhomogeneous paraxial wave equation.*", Conference on Partial Difference Equations in Novacella, Italy.
- Suazo, E., (March 2014). "*Solutions for Paraxial Wave Equations.*", Workshop on Mathematical Methods and Models in Laser Filamentation University of Montreal in Montreal, Canada.
- Suazo, E., (November 2013). "*Transformations between evolution equations and its applications to biology and physics.*", Encuentro de Matemática Interdisciplinaria Universidad de Los Andes (UniAndes) in Bogota, Colombia.
- Suazo, E., (March 2013). "*The Riccati system and a diffusion-type equation.*", The Eighth IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory in Athens, GA, USA.
- Suazo, E., (November 2012). "*On transformations for evolution equations.*", Colloquium Universidad del Norte Universidad del Norte in Barranquilla, Colombia.
- Suazo, E., (November 2012). "*On soliton solutions for the nonlinear Schrödinger equation.*", Dynamical Days South America in Cartagena, Colombia.

- Suazo, E., (November 9, 2012). "*On soliton solutions for nonlinear Schrödinger equation.*", Blackwell-Tapia Conference, ICERM ICERM, Brown University in Providence, RI, USA.
- Suazo, E., (May 2012). "*Transformations on the study of evolution equations.*", Barcelona UB-UPC Dynamical Systems Seminar in Barcelona, Spain.
- Suazo, E., (March 2012). "*Soliton-like solutions for the nonlinear Schrödinger equation with variable quadratic Hamiltonians.*", AMS Sectional Meeting in Washington, D.C., USA.
- Suazo, E., (March 2012). "*On solutions for linear and nonlinear Schrödinger equations with variable quadratic Hamiltonians.*", Barcelona UB-UPC Dynamical Systems Seminar in Barcelona, Spain.
- Suazo, E., (December 2011). "*Separation of variables and evolution equations.*", Colloquium of the Department of Mathematical Sciences Universidad de Puerto Rico, Mayaguez in Mayaguez, Puerto Rico.
- Suazo, E., (November 2011). "*Soliton-like solutions for the nonlinear Schrödinger equation with variable quadratic Hamiltonians.*", SIAM Conference on Analysis of Partial Differential Equations in San Diego, CA, USA.
- Suazo, E., (April 4, 2011). "*Soliton-like solutions for the nonlinear Schrödinger equation with variable quadratic Hamiltonians.*", The Seventh IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory in Athens, GA, USA.
- Suazo, E., (March 12, 2011). "*Method of separation of variables for the Schrödinger equation with time-dependent quadratic Hamiltonians.*", 2011 Spring Southeastern Section Meeting in Statesboro, GA, USA.
- Suazo, E., (June 2010). "*Explicit solutions for dispersive equations.*", Rocky Mountain Mathematics Consortium, Summer School on Conservation Laws and Applications in Laramie, WY, USA.
- Suazo, E., (June 10, 2010). "*Fundamental solutions for evolution equations.*", Symmetry Plus Integrability: The First International Conference on Integrable Systems and Nonlinear Waves on the Gulf of Mexico in South Padre Island, TX, USA.
- Suazo, E., (March 22, 2010). "*Fundamental solutions for evolution equations.*", Recent Advances in Function Related Operator Theory (RAFROT) in Rincon, Puerto Rico.
- Suazo, E., (February 26, 2010). "*An approach to construct explicit solutions for the Schrödinger equation with time-dependent Hamiltonians.*", SIDIM 2010 in Mayaguez, Puerto Rico.
- Suazo, E., (April 2009). "*Uniqueness of an explicit solution for a differential equation with variable coefficients.*", Analysis/PDE Seminar, Arizona State University Arizona State University in Tempe, AZ, USA.
- Suazo, E., (September 2008). "*Well-posedness for nonlinear Schrödinger equation with variable coefficients and L^2 initial data.*", Analysis/PDE seminar, Arizona State University Arizona State University in Tempe, AZ, USA.
- Suazo, E., (September 18, 2008). "*Evolution operator for the one-dimensional Schrödinger equation with a time-dependent Hamiltonian.*", Nonlinear Phenomena in Mathematical Physics, Fields Institute Fields Institute in Toronto, Canada.

Suazo, E., (June 2008). *Evolution operator for the one-dimensional Schrödinger equation with a time-dependent Hamiltonian.*”, 8th International Conference on Harmonic Analysis and Partial Differential Equations in El Escorial, Madrid, Spain.

Suazo, E., (June 1, 2008). *Explicit construction of the fundamental solutions to the one-dimensional Schrödinger equation.*”, Second Canada-France Congress in Montreal, Canada.

Contracts, Grants and Sponsored Research

Funded Grant

Oraby, T., Suazo, E., Yoon, J., "2019 Summer MAA NREUP-research experience for undergraduate," Sponsored by The Mathematical American Assosiation, Foundation, \$29,276.00. (May 1, 2019 - August 31, 2019).

Suazo, E. (PI), "Collaboration Grant for Mathematicians #316295 : Closed and approximate solutions to equations on wave propagation phenomena.," Sponsored by Simons Foundation, Foundation, \$28,543.00. (September 1, 2015 - August 31, 2019).

Suazo, E., "Faculty and Undergraduate Research Student Teams (FURST). NSF DMS #1620196," Sponsored by National Science Foundation (NSF), Federal, \$22,000.00. (January 1, 2017 - December 31, 2018).

Oraby, T., Suazo, E., Yoon, J., "2018 Summer MAA NREUP-research experience for undergraduate," Sponsored by The Mathematical American Assosiation, Foundation, \$29,276.00. (May 1, 2018 - August 30, 2018).

Suazo, E. (PI), "College of Sciences Research Enhancement Seed Grants Program: Wave structures for nonlinear partial differential equations and their applications in physics.," Sponsored by College of Sciences, UTRGV, The University of Texas Rio Grande Valley, \$12,280.00. (June 1, 2016 - November 30, 2017).

Suazo, E. (PI), "Dynamics of Evolution Equations Modeling Wave Phenomena Summer REU.," Sponsored by MAA NREUP MAA activity NSF (grant DMS-1359016) and NSA (grant H98230-15-1- 0020)., Federal, \$27,495.00. (January 1, 2015 - August 13, 2015).

Intellectual Contributions under Submission

Journal Articles

Pena, G.**, Rodrigo, H., Roychowdhury, M., Sifuentes, J., Suazo, E. Quantization for Uniform Distributions On Hexagonal, Semicircular and Elliptical Curves. *Journal of Mathematical Analysis and Applications*.

Hight, E.*, Oraby, T., Palacio, J.*, Suazo, E. On persistence of superoscillations for the Schrödinger equation with time-dependent quadratic Hamiltonians.

Research Currently in Progress

"Analysis of integrable peakon systems" (On-Going).

Study peakon and cuspon solutions for higher dimensional integrable systems and Cauchy problem Stability issue, and dynamical systems with Lie symmetries etc.

"Closed and approximate solutions to equations on wave propagation phenomena".

"High dimensional peakons" (On-Going).

Study peakon and cuspon solutions for higher dimensional integrable systems. Integrable models for fluid dynamics, Peakon/Peakon, Peakon/Kink interactions, PDE analysis, etc

"Wave structures for nonlinear partial differential equations and their applications in physics."

SERVICE

Department Service

Committee Co-Chair, Integrable System Seminar. (September 1, 2016 - August 31, 2018).

Committee Co-Chair, Three year lecturer search committee. (January 15, 2018 - July 30, 2018).

Committee Member, Dual Language Certificate program in Mathematics. (March 15, 2018 - May 15, 2018).

Committee Member, Master's Project for Edith Garcia "Solitons for Nonlinear Partial Differential Equations". (January 12, 2018 - May 5, 2018).

Committee Member, Master's Thesis Committee for Adriana Quiroz "Mathematical modeling of MERS-CoV nosocomial epidemic " , School of Mathematical and Statistical Science. (January 15, 2017 - May 15, 2017).

Committee Member, Department Chair Search Committee. (September 1, 2016 - May 15, 2017).

Master's Thesis Committee member. Daniel Medina, "Disease modeling using fractional differential equations and estimation " , School of Mathematical and Statistical Science. (January 15, 2016 - May 15, 2017).

Committee Co-Chair, SMSS SPRING RESEARCH WORKSHOP: RECENT DEVELOPMENTS IN INTEGRABLE SYSTEMS AND SOLITONS. (March 6, 2017 - March 8, 2017).

Committee Co-Chair, 2016 Fall Visiting Scholars, Faculty, and Students Workshops on Mathematics and their Applications in related fields. (November 19, 2016).

Committee Member, Service in the search committee for the faculty tenure-track position in Applied Mathematics. (September 15, 2015 - July 15, 2016).

Committee Member, Service in the search committee for the faculty tenure-track position in Computational Mathematics with Statistics. (September 15, 2015 - July 15, 2016).

Professional Service

Reviewer, Journal Article, Symmetry. (January 8, 2018 - Present).

Reviewer, Journal Article, Annalen der Physik. (December 12, 2017 - Present).

Reviewer, Journal Article, Journal of Mathematical Physics. (August 15, 2017 - Present).

Reviewer, Journal Article, Communications in Nonlinear Science and Numerical Simulation. (September 1, 2016 - Present).

Reviewer, Journal Article, Mathematics. (January 2014 - Present).

Reviewer, Journal Article, Reviewer for Mathematical Reviews, American Mathematical Society, (January 15, 2011 - Present).

Reviewer, Journal Article, Proceedings of American Mathematical Society. (January 2011 - Present).

Journal of Computational and Applied Mathematics. (August 2013 - May 2015).

Committee

Universidad de Cadiz, External Ph.D dissertation reviewer, Cadiz. (October 1, 2017 - December 15, 2017).

Other

Reviewer for Scholarships applications 2017 Tapia Conference. (November 2016 - May 2017).

* indicates undergraduate student

** indicates graduate student