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EDUCATION

State University of Campinas, Brazil	**Ph.D. Mathematics**	**2002 – 2005**
State University of Campinas, Brazil	**M.Sc. Mathematics**	**2000 – 2002**
Universidad Industrial de Santander, Colombia	**B.Sc. Lic. Mathematics**	**1995 – 2000**

PROFESSIONAL EXPERIENCE

Mathematics Department, Universidad Industrial de Santander, Bucaramanga, Colombia
Associate Professor
Since October 2010

Mathematics Department, Universidad Nacional de Colombia-Sede Medellín, Colombia
Associate Professor
February 2009- October 2010

Mathematics Department, Universidad Industrial de Santander, Bucaramanga, Colombia
Assistant Professor
August 2005- January 2009

TEACHING EXPERIENCE

At the Universidad Industrial de Santander

Calculus, Vector Calculus, Ordinary Differential Equations, Complex Variable, Real Analysis, Measure Theory, Linear Algebra, Topology, Vector Analysis, Functional Analysis, Partial Differential Equations, Topics in Fuzzy Analysis, Optimization, Set Theory.

At the Universidad Nacional de Colombia, Medellín

Vector Calculus, Ordinary Differential Equations, Partial Differential Equations, Measure Theory, Vector Analysis, Functional Analysis.

PRIZES AND AWARDS

- **Awared by the "Vicerrectoria de Investigación" of the Universidad Industrial de Santander** (2014-2015).
- **TWAS prize for young Colombian Scientisfics**, Third World Academy Sciences (2008).
- **Awared by the Academic Council of the Universidad Industrial de Santander** (2008).
- **Beca COLCIENCIAS** (2002), proyecto BID III- etapa, Colombia. Scholarship awarded to pursue Ph.D. degree.
- **Beca fundación CAPES, Brazil** (2000). Scholarship awarded to pursue Master degree.

PAPERS PUBLISHED

- **An optimal control problem for the steady nonhomogeneous asymmetric fluids** (joint with E. Mallea-Zepeda and E. Ortega-Torres). Applied Mathematics and Optimization, v. 80, No.2 (2019), 299-329.
- **Global existence for an attraction-repulsion chemotaxis fluid model with logistic source** (joint with A. Duarte-Rodríguez and L.C.F. Ferreira). Discrete and Continuous Dynamical System-B, v.24, No.2 (2019), 423-447.
- **On the product in Besov-Lorentz-Morrey spaces and existence of solutions for stationary Boussinesq equations** (joint with L.C.F. Ferreira and J.E. Pérez-López). Communications on Pure and Applied Analysis, v. 17, No. 6 (2018), 2423-2439.
- **On a distributed control problem for a coupled chemotaxis-fluid model** (joint with María A. Rodríguez-Bellido and Diego A. Rueda-Gómez). Discrete and Continuous Dynamical System-B, v. 23, No. 2 (2018), 557-571.
- **On the Rayleigh-Bénard-Marangoni system and a related optimal control problem** (joint with Diego A. Rueda-Gómez). Computers and Mathematics with Applications, v. 74, No. 12 (2017), 2969-2991.
- **Solutions in Bessel-potential spaces for wave equations with nonlinear damping** (joint with C. Banquet and L.C.F. Ferreira). Mathematical Methods in the Applied Sciences, v. 40, No. 15 (2017), 5613-5618.
- **On the non-newtonian fluids with convective effects** (joint with S. Herrón). Elec. Journal of Differential Equations, v. 2017, No. 155 (2017), 1-28.

- **Global existence of weak solutions for a nxn system of chromatography** (joint with Y. Lu, J. Xie). Nonlinear Analysis: Real World Applications, v. 37, No. 2 (2017), 309-316.

- **A boundary control problem for micropolar fluids** (joint with E. Mallea-Zepeda and E. Ortega-Torres). Journal of Optimization Theory and Applications, v. 169, No.2 (2016), 349-369.

- **On the Schrodinger equation with isotropic and anisotropic fourth-order dispersion** (joint with C. Banquet). Elec. Journal of Differential Equations, v. 2016, No. 13 (2016), 1-20.

- **On the existence and scattering theory for the Klein-Gordon-Schrodinger system in an infinite L^2-norm setting** (joint with C. Banquet and L.C.F. Ferreira). Annali di Matematica Pura ed Applicata, v. 194, (2015), 781-804.

- **Interval-valued functions in a quotient space,** (joint with Y. Chalco-Cano and H. Román-Flores). Proceedings 2015 Annual Conference of the North Americal Fuzzy Information Processing Society (NAFIPS) (2015).

- **Existence of solutions to fuzzy differential equations with generalized Hukuhara derivative via contractive-like mapping principles** (joint with V. Angulo and Y. Chalco-Cano). Fuzzy Sets and Systems, v. 265, (2015), 24-38.

- **On the nonhomogeneous Navier-Stokes system with Navier friction boundary conditions** (joint with G. Planas and L.C.F. Ferreira). SIAM Journal of Mathematical Analysis, v. 45, No. 4, (2013), 2576-2595.

- **On the Schrodinger-Boussinesq system with singular initial data** (joint with L.C.F. Ferreira and C. Banquet). Journal of Mathematical Analysis and Aplications, v. 400, No. 2, (2013), 487-496.

- **Strong solutions and inviscid limit for Boussinesq system with partial viscosity** (joint with L.C.F. Ferreira). Communications in Mathematical Sciences, v. 11, No.2, (2013), 421-439.

- **On the Davey-Stewartson system with singular initial data** (joint with J.E. Pérez-López). Comptes Rendus Mathematique, v. 350, No.21-22, (2012), 959-964.

- **Self-similarity and asymptotic stability for coupled nonlinear Schrodinger equations in high dimensions** (joint with L.C.F. Ferreira). Physica D-Nonlinear Phenomena, v. 241, (2012), 534-542.

- **Fractional Navier-Stokes equations and Holder-type inequality in a sum of singular spaces** (joint with L.C.F. Ferreira). Nonlinear Analysis. Theory Methods and Applications. v. 74, (2011), 5618-5630.

- **A semilinear heat equation with a localized nonlinear source and non-continuous initial data** (joint with L.C.F. Ferreira). Mathematical Methods in the Applied Sciences, v. 74, (2011) 1-18.

- **On a generalized Boussinesq model around a rotating obstacle: Existence of strong solutions** (joint with E. Ortega-Torres). Discrete and Continuous Dynamical Systems-B, v. 15, (2011), 825-847.

- **On the heat equation with concave-convex nonlinearity and initial data in weak-Lp spaces** (joint with L.C.F. Ferreira). Communications on Pure and Applied Analysis, v.10, (2011), 1715-1732.

- **A note on the Cauchy problem of fuzzy differential equations** (joint with W.González-Calderón). Academia Colombiana de Ciencias Exactas, Físicas y Naturales, v. 34, (2010), 541-552.

- **Exponentially-stable steady flow and asymptotic behavior for the magnetohydrodynamic equations** (joint with L.C.F. Ferreira). Communications Mathematical Sciences, v. 9, (2011), 499-516.

- **Micropolar fluids with vanishing viscosity** (joint with E.Ortega-Torres & M.A. Rojas-Medar). Abstract and Applied Analysis, p.18, (2010).

- **Periodic solutions in unbounded domains for the Boussinesq system** (joint with M.A. Rodríguez-Bellido & M.A. Rojas-Medar). Acta Mathematica Sinica-English Series, v.26, (2010), 837 - 862.

- **On the existence of solutions for the Navier-Stokes system in a sum of weak-L^p spaces** (joint with L.C. F. Ferreira). Discrete and Continuous Dynamical Systems, v.27, (2009), p.171 - 183.

- **On the stability problem for the Boussinesq equations in weak-L^p spaces** (joint with L.C. F. Ferreira)**.** Communications on Pure and Applied Analysis v.09, (2010), 667-684.

- **Strong solutions for the nonhomogeneous Navier-Stokes equations in unbounded domains** (joint with M.A. Rojas-Medar & P. Braz e Silva). Mathematical Methods in the Applied Sciences, v.33, (2010), 358-372.

- **On the existence of infinite energy solutions for nonlinear Schrodinger equation** (joint with L.C.F. Ferreira & P. Braz e Silva). Proceedings of The American Mathematical Society, v.137, (2009), 1977-1987.

- **Existence of solutions to the convection problem in a pseudo measure-type space** (joint with L.C. F. Ferreira). Proceedings of the Royal Society A-Mathematical Physical and Engineering Sciences, v.464, (2008), 1983-1999.

- **Very weak solutions for the magnetohydrodynamic type equations** (joint with G. Arenas-Díaz, H. Lamos). Discrete and Continuous Dynamical Systems-B, v.10, (2008), 957 -972.

- **Comportamiento en el infinito de las soluciones de una clase abstracta de ecuaciones de evolución** (joint with G. Arenas-Díaz, H. Lamos)**.** Academia Colombiana de Ciencias Exactas, Físicas y Naturales, v.32, (2008), 47 -59.

- **Global existence and exponential stability for the micropolar fluid system** (joint with M.A. Rodríguez-Bellido). Zeitschrift fur Angewandte Mathematik und Physik, v.59, (2008), 790 - 809.

- **Micropolar fluid system in a space of distributions and large time behavior** (joint with L.C.F. Ferreira). Journal of Mathematical Analysis and Applications, v.332, (2007), 1424 -1444.

- **On the existence and stability of solutions for the micropolar fluids in exterior domains** (joint with L.C.F. Ferreira). Mathematical Methods in the Applied Sciences, v.30, (2007), 1185-1208.

- **Self-similar solutions, Uniqueness and Long Time Asymptotic Behaviour for the Semilinear Heat Equations** (joint with L.C.F. Ferreira). Differential and Integral Equations, v.19, (2006), 1349-1370.

- **The Boussinesq system with mixed nonsmooth boundary data** (joint with M.A. Rodríguez-Bellido & M.A. Rojas-Medar). CRAS Comptes Rendus Mathematique, v.343, (2006), 191 -196.

- **Well-posedness and asymptotic behaviour for the convection problem in Rn.** (joint with L.C.F. Ferreira). Nonlinearity, v.19, (2006), 2169-2191.

- **Some properties of a class of abstract stationary equations** (joint with M.A. Rodríguez-Bellido & M.A Rojas-Medar). Nonlinear Analysis-Theory Methods and Applications, v.64, (2006), 2203 -2214.

- **Continuous dependence of very weak solutions for the Navier-Stokes equations.** Revista Integración, v.23, (2005), 11-16.

BOOKS

- **Introducción a las ecuaciones diferenciales difusas** (joint with Gilberto Arenas-Díaz). Ediciones Universidad Industrial de Santander (2018), ISBN:978-958-8956-47-3.

- **Topología general** (joint with Javier Enrique Camargo García). Ediciones Universidad Industrial de Santander, To appear (2019).

EDITORIAL WORK

- Member of the Editorial board of the **Revista Integración**. Revista Integración is a Colombian mathematical journal which publishes original research papers in all areas in mathematics; some times, review papers are also considered. Please visit the webpage: http://matematicas.uis.edu.co/integracion/.

- Referee of the following mathematical journals:
  Applied Mathematical Letters
  Acta Mathematica Scientia
  Acta Applicandae Mathematicae
  Axioms
  Computers & Mathematics with Applications
  Cummunications on Pure and Applied Analysis
  Computational and Applied Mathematics
  Dynamics of Continuous, Discrete and Impulsive Systems, Series A. Math. Anal.
  Fuzzy Sets and Systems
  Mathematical Methods in the Applied Sciences
  Mathematische Nachrichten
  Journal of Mathematical Fluid Mechanics
  Journal of Mathematical Analysis and Applications
  Proceedings of the Royal Society, Math. Phys. Eng. Sci.
  Revista Acad. Col. Ciencias Exac. Fis y Nat. (ACCEFYN)
  Revista Integración
  Vietnam Journal of Mathematics

STUDENTS

- **Jesús Fernando Carreño Díaz (**M.Sc. 2019). "El espacio de las medidas de Radon y aplicaciones".

- **Miguel Ángel Fontecha (**B.Sc. 2018). "Ecuaciones de Navier-Stokes en un espacio de distribuciones".
- **Abelardo Duarte Rodríguez (**M.Sc. 2018). "Análisis teórico de un modelo matemático de la quimiotaxis atractivo-repulsiva, con crecimiento logístico, en fluidos".
- **Laura Milena Romero Parada (**M.Sc. 2016). "Introducción a la teoría de fluidos no newtonianos".
- **Exequiel Enrique Mallea Zepeda (**PhD. 2015). "Algunos problemas de control óptimo para fluidos micropolares" (coadvisor).
- **Jorge Leonardo López Agredo (**B.Sc. 2015). "Una introducción a la ecuación de Schrodinger".
- **Diego Armando Rueda Gómez (**M.Sc. 2014). "Un problema de control óptimo asociado al modelo de Rayleigh-Bénard-Marangoni".
- **Vladimir Angulo (**Master 2013). "Ecuaciones diferenciales difusas y aplicaciones en teoría de control".
- **Jhean Eleison Pérez López (**M.Sc. 2012). "Estudio cualitativo del sistema de Davey-Stewartson con dato inicial singular".
- **Alexander Reátiga Villamizar (**M.Sc. 2010). "Diferenciabilidad de multifunciones y aplicaciones en el contexto difuso".
- **William González Calderón** (M.Sc. 2010). "Ecuaciones diferenciales ordinarias difusas".
- **Juan Gabriel Galeano Delgado** (M.Sc. 2009), "Existencia global y estabilidad de soluciones para las ecuaciones de la magnetohidrodinámica (MHD)".
- **Vladimir Angulo** (B.Sc. 2010), "Puntos fijos de multifunciones difusas".
- **Carolina Vesga Mantilla** (B.Sc. 2007) "Funciones invexas diferenciables y el Teorema de Karush-Kuhn-Tucker".
- **Carmen Cecilia Ballesteros Quiroga** (B.Sc. 2007) "Curvas características en ecuaciones diferenciales parciales de primer orden".
- **Ángela María Guzmán Hernández** (B.Sc. 2007) "La función delta de Dirac: Una introducción a la teoría de las distribuciones".
- **Nicolás Cáceres Moreno** (B.Sc. 2006) "Espacios y convergencia de conjuntos difusos".

LECTURES

- **Modulation spaces and applications in the solution of PDE models,** XX Congreso Colombiano de Matemáticas, Popayán, Junio 2019.

- **Some PDE models in modulations spaces,** V Taller de análisis no lineal, Universidad Nacional de Colombia, Bogotá, Junio 2019.

- **On the existence and regularity of solutions for a chemotaxis-Navier-Stokes system,** ICMC Summer Meeting on Differential Equations, Sao Carlos, Brazil, February 2019.

- **An control problem associated to the Chemotaxis phenomenon,** X Simposio Nororiental de Matemáticas, Bucaramanga, Colombia, December 2018.

- **An Introduction to chemotaxis models in fluids,** Coloquio Universidad Yachay Tech, Ibarra, Ecuador, November 2017.

- **On the Keller-Segel-Navier-Stokes system,** IV Taller de Análisis no Lineal y Ecuaciones Diferenciales Parciales, Universidad Nacional de Colombia, Manizales, Colombia, July 2017.

- **On the attraction-repulsion chemotaxis fluid models,** XXI Congreso Colombiano de Matemáticas, Universidad Nacional de Colombia, Bogotá, Colombia, June 2017.

- **Tópicos en Ecuaciones Diferenciales Parciales (minicurso),** V Escuela de invierno-EIMZA 2016, Universidad Nacional de San Antonio Abad del Cusco, Cusco, Perú, August 2016.

- **Algunos problemas elípticos en mecánica de fluidos,** XX Congreso Colombiano de Matemáticas, Universidad Nacional de Colombia Sede Manizales, Manizales, Colombia, July 2015.

- **Una introducción al estudio de las ecuaciones diferenciales ordinarias fuzzy,** Coloquio de la Escuela de Física, Universidad Industrial de Santander, Bucaramanga, Colombia, May 2015.

- **On the Navier-Stokes equations for flows with shear dependent viscosity,** X Americas Conference on Differential Equations and Nonlinear Analysis, Universidad de Buenos Aires, Buenos Aires, Argentina, Februry 2015.

- **On the Navier-Stokes system with variable density and Navier friction boundary conditions,** International Congress of Mathematicians, Seoul, Korea, August 2014.

- **Ecuaciones de Navier-Stokes con condiciones de Navier,** VIII Simposio Nororiental de Matemáticas, Universidad Industrial de Santander, Bucaramanga, Colombia, December 2013.

- **Some results of the Schrodinger equation with fourth-order dispersion,** Seminários Equaçoes Diferenciais, Universidade Estadual de Campinas, Brazil, April 2013.

- **Una introducción a las ecuaciones de Navier-Stokes,** Coloquio semanal Universidad de los Andes, Bogotá, Colombia, November 2013.

- **Some results of the non-homogeneous Navier-Stokes with slip boundary conditions,** XIX Congreso Colombiano de Matemáticas, Barranquilla, Colombia, July 2013.

- **Existencia y regularidad de solución para las ecuaciones de Navier-Stokes: Uno de los problemas del milenio,** XXII Jornada de Matemáticas y Estadística, Universidad Pedagógica y Tecnológica de Colombia, Tunja, Colombia, November 2012.

- **Solución de problemas de valor inicial de tipo dispersivo con datos iniciales singulares. Aplicación del principio de contracciones,** II Taller de análisis no lineal y ecuaciones diferenciales parciales, Universidad Nacional de Colombia, Bogotá, Colombia, June 2012.

- **Existence of very weak solutions for the Navier-Stokes and Boussinesq systems,** IX Americas Conference on Differential Equations, Trujillo, Perú, January 2012.

- **Problemas de control óptimo en mecánica de fluidos,** XVIII Congreso Colombiano de Matemáticas, Bucaramanga, Colombia, July 2011.

- **Fluidos incompresibles a través de medios porosos no consolidados,** III Workshop Iberoamericano de matemática aplicada, Chillán, Chile, January 2010.

- **Las Ecuaciones de Navier-Stokes en el marco de los Problemas Clay**, IV Simposio Nororiental de Matemáticas, Bucaramanga, Colombia, December 2009.

- **Some results on the heat equation with concave-convex nonlinearity**, Evento: XVII Congreso Colombiano de Matemáticas, Cali, Colombia, August 2009.

- **Problemas de valor inicial y de frontera en mecánica de fluidos**, Congreso Nacional Universitario de Física, Puebla, México, February 2009.

- **Existence of solutions for the Navier-Stokes equations in sum of weak-Lp spaces,** II Workshop Iberoamericano de matemática aplicada, Chillán, Chile, December 2008.

- **Introducción a las ecuaciones de evolución**, VI Simposio Nororiental de Matemáticas, Bucaramanga, Colombia, December 2007.

- **Well-posedness and asymptotic behavior for the Boussinesq problem in Rn**, XX Congreso de Ecuaciones Diferenciales y Aplicaciones y X Congreso de Matemática Aplicada-CEDYA, Sevilla, España, September 2007.

- **On the existence of infinite energy solutions for nonlinear Schrodinger equation**, XVI Congreso Nacional de Matemáticas, Medellín, Colombia, August 2007.

- **On the well-posedness and asymptotic behavior for the Boussinesq problem in nD,** Seventh Americas School in Differential Equations and Nonlinear Analysis. Cartagena, Colombia, August 2007.

- **Comportamiento en el infinito de una clase abstracta de ecuaciones de evolución,** XIII Congreso Escuela Regional de Matemáticas, Pereira, Colombia, September 2006.

- **Self similar solutions, uniqueness and long time asymptotic behavior for the semilinear heat equations**, International Conference in Memory of Jose Escobar ´Chepe´ 1954-2004, Cali, Colombia, February 2006.

- **Aspectos básicos de la Teoría de conjuntos difusos,** 5° Simposio Nororiental de Matemáticas, Bucaramanga, Colombia, December 2005.

- **Prolongación de soluciones de ecuaciones diferenciales ordinarias y aplicaciones a ecuaciones en derivadas parciales**, 5o. Simposio Nororiental de Matemáticas, Bucaramanga, Colombia, December 2005.

- **On the existence of very weak solutions for the stationary Boussinesq equations,** XV Congreso Colombiano de Matemáticas, Bogotá, Colombia, August 2005.

- **On the time-periodicity of Boussinesq equations in the Lorentz spaces,** 61 Seminario Brasileiro de Analise, Sao Joao del Rei, Brasil, Mayo 2005.

- **Periodic solutions of the Boussinesq equation in unbounded domains,** I Encontro Científico dos Alunos da Posgraduacao do IMECC, Campinas, Brasil, August 2004.

- **Some Properties of a Class of Abstract Stationary Equations**, 60 seminario brasileiro de analise, Rio de Janeiro, Brasil, June 2004.

REFERENCES

- **Prof. Lucas C.F. Ferreira,** Institute of mathematics, Statistics, and Computer Science, IMECC, State University of Campinas, Campinas-UNICAMP, Brazil, Tel. 019-35216032, E-mail: lcff@ime.unicamp.br

- **Prof. María A. Rodríguez-Bellido,** Department of Differential Equations and Numerical Analysis, University of Sevilla, Sevilla, España, Tel.+34-954552898, E-mail: angeles@us.es