Lorena Aguirre Salazar

Curriculum Vitæ

Contents

Education

2016 - 2021 **Ph.D. in Mathematics**, *McMaster University - Canada*, Supervisors: Drs. Stan Alama and Lia Bronsard, Thesis title: Solutions and limits of the Thomas-Fermi-Dirac-Von Weizsäcker energy with background potential

2012 - 2014 **M.Sc in Applied Mathematics**, *Technion - Israel*, Supervisor: Dr. Itai Shafrir, Thesis title: On Semi-linear elliptic systems exhibiting critical behavior

2010 **Exchange student**, *Ingeniería Civil Matemática - Universidad de Chile, Santiago*, Courses taken: Fourier Analysis, Partial Differential Equations, Optimization

2009 - 2011 **B.Sc in Mathematics**, *Universidad Nacional de Colombia*

Professional Development

2022-2023 **One year program**, *TPSE Leadership institute*, Leadership in transforming post-secondary education in Mathematics. Project-based

2022 **Certificate**, *Kognito*, At-risk Mental Health for Faculty & Staff

2021 **Online Specialization**, *University of Colorado*, The Teacher and Social and Emotional Learning

2020 **Online Specialization**, *University of California*, Virtual Teacher

2020 **Online Certificate**, *University of Michigan*, Leading for Equity, Diversity and Inclusion in Higher Education

2020 **Online Certificate**, *University of Illinois*, An introduction to Accessibility and Inclusive Design

2020 **Certificate**, *McMaster University*, Professor Hippo-on-Campus Student Mental Health Education Program for Educators and Navigators

2018-2019 **Certificate**, *McMaster University*, Teaching and Learning Scholar

2018 **Certificate**, Instructional Skill Workshop (ISW)

2017-2018 **Certificate**, *McMaster University*, Teaching and Learning Foundations

Research Interests

Reflective Practices in Teaching and Learning Mathematics, Pattern formation in the Calculus of Variations and PDEs both theoretically and computationally.

Experience

2023-2024   **Limited term Assistant Professor**, *Lakehead University*, Currently teaching: Calculus I for Engineers (MATH 1210), Matrix Methods and Differential Equations (MATH 2090), Vector Analysis (MATH 3012)

2022-2023   **Assistant Professor**, *Valdosta State University*, Taught: Analytic geometry & Calculus I (MATH 2261), Analytic geometry & Calculus II (MATH 2262), Introduction to Linear Algebra (MATH 2150), Numerical Analysis (MATH 4561), Introduction to Mathematical Modeling (MATH 1101 online)

2017-2021   **Instructor**, *McMaster University*, in-person or online, Introduction to Differential Equations (2C03), Engineering Mathematics II A (1ZB3)

2016-2021   **Teaching Assistant**, *McMaster University*, in-person or online, Calculus for Mathematics and Statistics I (1X03), Engineering Mathematics III (2Z03), Advanced Calculus I (2X03), Advanced Calculus II (2XX3), Introduction to Differential Equations (2C03), Partial Differential Equations for Engineers (3I03), and Real Analysis (3A03)

2015-2016   **Researcher**, *Universidad Nacional de Colombia*, Researcher in the academic group "Scientific Calculus and Mathematical Modelling", Partially mentoring Master students

2016   **Instructor**, *Universidad de Caldas, Colombia*, in-person, Differential and Integral Calculus, Descriptive Statistics

2014-2016   **Instructor**, *Universidad Nacional de Colombia*, in-person, Single Variable Calculus, Integral Calculus, Linear Algebra, Numerical Methods, Complex Analysis

Projects and Publications

2023   **L. Aguirre Salazar**, *Community building in Mathematics at VSU*, Early stages

2023   **L. Aguirre Salazar**, *On an Ohta-Kawasaki model in $\mathbb{R}^3$*, In preparation

2021   **L. Aguirre Salazar, S. Alama, and L. Bronsard**, *"Convergence of the TFDW Energy to the Liquid Drop Model"*, SIAM J. Math. Anal., **53**(3), pp. 3493-3519

2020   **L. Aguirre Salazar, S. Alama, and L. Bronsard**, *"Mass splitting in the Thomas-Fermi-Dirac-von Weizsäcker model with background potential"*, Journal of Mathematical Physics, **61** 021502

2017   **L. Aguirre, H. Contreras and C.D. Acosta**, *"Numerical solution to a nonlocal and nonlinear Black-Scholes model by discrete mollification" (Spanish)*, Revista Colombiana de Matemáticas, **51**(2), pp. 195-220

2015   **L. Aguirre Salazar and S. Reich**, *"A remark on weakly contractive mappings"*, Journal of Nonlinear Convex Analysis **16**(4), pp. 767-773

Service

2022-2023 **Committee member**, *Valdosta State University*, Faculty committee on student engagement, MESA (a committee that serves the Hispanic students at VSU), Undergraduate Research Committee, various departmental committees.

2020 **Reviewer**, *SIAM Studies in Applied Mathematics*

2020 **Initiative**, *McMaster University*, Started the team "Teaching and Learning Math at Mac!", where students, faculty and staff have discussions on teaching and learning Mathematics

Activities

Dec/2023 **Speaker**, *CMS Winter Meeting*, Montréal, Québec, Canada

June/2023 **Speaker**, *"Emerging trends in Variational Models of Materials"*, Centre de Recherches Mathématiques, Montréal, Québec, Canada

June/2023 **Speaker**, *CMS-Summer meeting*, University of Ottawa, Ottawa, Ontario, Canada

May/2023 **Attendee**, *First-Year Math and Stats in Canada*, Online

July/2022 **Attendee**, *BIRS Workshop "Theoretical and Applied Aspects for Nonlocal Models"*, Banff, Alberta, Canada

May/2022 **Attendee**, *"IMD 2nd Annual Conference in Mathematics and Politics"*, The institute for Mathematics and Democracy

April/2022 **Attendee**, *"Graduate Research Symposium"*, VSU, Valdosta, Georgia, U.S

April/2022 **Attendee**, *"VSU-USG Teaching & Learning Conference regional event welcome"*, VSU, Valdosta, Georgia, U.S

April/2022 **Attendee**, *USG Teaching & Learning Conference 2022*, Valdosta, GA, U.S

Dec/2021 **Speaker and co-organizer of a session**, *2021 CMS Winter Meeting*, online

June/2021 **Attendee**, *BIRS Workshop Novel Mathematical Methods in Material Science: Applications to Biomaterials*, online

May/2021 **Attendee**, *SIAM Conference on Mathematical Aspects of Material Science - MS21*, online

April/2021 **Speaker**, *Seminar*, Virginia Commonwealth University, online

Feb/2021 **Attendee**, *Mathematical and Computational Materials Science Workshop*, online

Jan/2021 **Attendee**, *One nonlocal World*, online

Dec/2020 **Attendee**, *CMS Virtual Winter Meeting*, online

Jul/2020 **Attendee**, *CMS COVID-19 Research and Education Meeting (CCREM)*, online

July/2020 **Speaker**, *Second Joint CAIMS-SIAM Annual Meeting*, Toronto, ON, Canada, online

May/2020 **Attendee**, *First-Year Math and Stats in Canada: Creating Epsilons of Improvement*, University of Toronto, Mississauga, ON, Canada

Dec/2019 **Speaker**, *SIAM Conference on Analysis of Partial Differential Equations*, La Quinta, CA, U.S

Sep/2019 **Speaker**, *Seminar*, University of British Columbia, and the University of Victoria

Jul/2019	**Attendee**, *UCT Teaching and Learning Conference*, University of Cape Town, South Africa
Jun/2019	**Speaker**, *Workshop on New Trends in Variational Models: From Superconductors to Liquid Crystals*, The Fields Institute, Toronto, ON, Canada
May/2019	**Attendee**, *First-Year University Mathematics across Canada*, University of Alberta, Edmonton, AB, Canada
Mar/2019	**Poster**, *Workshop on Mathematical Pattern Formation*, Carnegie Mellon University, Pittsburgh, PA, U.S
May/2018	**Attendee**, *Topics in the Calculus of Variations: Recent Advances and New Trends*, Banff, AB, Canada
Jul/2015	**Attendee**, *XX Colombian Congress of Mathematics*, Manizales, Colombia
Jun/2014	**Summer School**, *Partial Differential Equations and Geometric Measure Theory*, Fondazione CIME Centro Internazionale Matematico Estivo, Cetraro, Italy
Jan-Feb/2010	**Summer school**, *Measure Theory*, Universidade Federal de Rio de Janeiro (UFRJ), Brazil
Jan-Feb/2010	**Summer school**, *Functional Analysis*, Instituto de Matemática Pura y Aplicada (IMPA), Rio de Janeiro, Brazil
Jul/2008	**Attendee**, *XXII Coloquio Distrital de Matemáticas y Estadística*, Bogotá, Colombia
Jul/2007	**Attendee**, *XVI Congreso de Matemáticas*, Medellín, Colombia

Awards and Scholarships

2020	**Scholarship**, *McMaster University*, Dr. F. R. Britton scholarship 2020/2021
2019	**Scholarship**, *McMaster University*, Dr. F. R. Britton scholarship 2019/2020
2019	**Student Travel Award**, *SIAM*, Conference on Analysis of PDEs
2019	**Research Award**, *McMaster University*, James Stewart Student Research Award
2018	**Scholarship**, *McMaster University*, Dr. F. R. Britton scholarship 2018/2019
2016	**Scholarship**, *McMaster University*, Dr. F. R. Britton scholarship 2016/2017
2016-2021	**Scholarship**, *McMaster University*, Ph.D program in Mathematics
2012-2014	**Scholarship**, *Technion* , M.Sc in Applied Mathematics
2010	**Scholarship**, *Universidade Federal de Rio de Janeiro (UFRJ), Brazil*, Summer course. course taken: Measure Theory, graduate level
2010	**Scholarship**, *Instituto de Matemática Pura y Aplicada (IMPA), Brazil*, Summer course. course taken: Functional Analysis, graduate level
2009-2011	**Waived tuition**, *Universidad Nacional de Colombia*, Five terms with top average marks during my undergraduate studies
2007	**First Admission Place**, *Universidad Nacional de Colombia*, B.Sc in Mathematics Sede Manizales, starting in Feb/2007. I transferred to Bogotá in Feb/2009

Language Skills

English: Advanced; Chinese, Hebrew, Portuguese, Russian: Basic; Spanish: Native Language.

Programming Skills

Matlab, Java, C++, Maple, R.

References

Professor and Department Head
Shaun Van Ault, *Department of Mathematics, Valdosta State University*, `svault@valdosta.edu`, +1 229 333 5778

Professor
José Velez Marulanda, *Department of Mathematics, Valdosta State University*, `josevelezm@gmail.com`, +1 229 333 7444

Professor
Lia Bronsard, *Department of Mathematics and Statistics, McMaster University*, `bronsard@mcmaster.ca`, +1 905 525 9140 ext. 23418

Professor
Stanley Alama, *Department of Mathematics and Statistics, McMaster University*, `alama@mcmaster.ca`, +1 905 525 9140 ext. 27363

Professor
Peter Sternberg, *Department of Mathematics, University of Indiana*, `sternber@indiana.edu`, +1 812 855 6726

Professor
Dmitry Pelinovsky, *Department of Mathematics and Statistics, McMaster University*, `dmpeli@math.mcmaster.ca`, +1 905 525 9140 ext. 23424

Professor
Itai Shafrir, *Department of Mathematics, Technion*, `shafrir@technion.ac.il`, +972 04 829 4021

Professor Emeritus
Simeon Reich, *Department of Mathematics, Technion*, `sreich@technion.ac.il`, +972 04 829 4172

Professor
Simeón Casanova Trujillo, *Departamento de Matemáticas, Universidad Nacional de Colombia*, `scasanovat@unal.edu.co`, +576 887 9300 ext. 50423