

Mariana Smit Vega Garcia

Personal information

Nationalities Brazilian and Spanish

(Spanish name: Mariana Vega Smit)

Education

2009 - 2014 **Ph.D. Mathematics**, advisor: Prof. Arshak Petrosyan, Purdue University, USA, Dissertation title: Optimal regularity in the lower dimensional obstacle problem with variable coefficients.

2006 - 2008 **M.S. Mathematics**, advisor: Prof. Paulo Cordaro, Universidade de Sao Paulo, Brazil, Dissertation title: Division of tempered distributions by polynomials.

2003 - 2006 **B.S. Mathematics**, Universidade de Sao Paulo, Brazil.

Positions

2021 - **Associate Professor**, Western Washington University, Bellingham, USA, primary research interest: Analysis, Partial Differential Equations.

2018 - 2021 **Assistant Professor**, Western Washington University, Bellingham, USA.

2016 - 2018 **Acting Assistant Professor**, University of Washington, Seattle, USA.
mentor: Prof. Tatiana Toro

2014 - 2016 **Post-doc**, initially at Heinrich Heine University (Düsseldorf), then my position was transferred to the University of Duisburg-Essen (Essen), Germany.
mentor: Prof. Georg Weiss

2013 - 2014 **Teaching Assistant**, Mathematics Department, Purdue University, USA.

2011 - 2013 **Research Assistant**, Mathematics Department, Purdue University, USA.

2009 - 2011 **Teaching Assistant**, Mathematics Department, Purdue University, USA.

Grants, Scholarships

2021-2024 **NSF Analysis Standard Grant**, Title: "Analysis and Geometry of Free Boundaries", Award number 2054282, 08/15/2021 - 07/31/2024.

2018 **AWM-NSF Travel Grant**.

2018 **UW Office of Postdoctoral Affairs Travel Award**, University of Washington.

Sep-Oct 2014 **Institut Mittag-Leffler Postdoctoral fellowship grant**.

Fall 2013 **AMS Grad Student Travel Grant**.

2009 **Zoltners Scholarship**, Purdue University.

2006-2008 **Grant from the State of Sao Paulo Research Foundation, 06/53020-5**.

2005-2006 **Grant from the State of Sao Paulo Research Foundation, 2005/50187-3**.

Publications

Dept of Mathematics, WWU, BH 230, Bellingham, WA 98225, USA

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Google Scholar: scholar.google.com/citations?user=Ln34oaoAAAAJ

- 2023 **N. González, P. E. Harris, G. R. Kirby, M. Smit Vega Garcia & B. E. Tenner**, *Pinnacle sets of signed permutations*, arXiv:2301.02628v1.
- 2023 **G. David, M. Engelstein, M. Smit Vega Garcia & T. Toro**, *Branch Points for (Almost-)Minimizers of Two-Phase Free Boundary Problems*, Forum of Mathematics, Sigma, 11, E1, arXiv:2204.05367.
- 2022 **M. Smit Vega Garcia**, *An overview of Almost Minimizers of Bernoulli-Type Functionals*, to appear in “50th John H. Barrett Memorial Lectures: A3N2M: Approximation, Applications, and Analysis of Nonlocal, Nonlinear Models”, IMA Volumes in Mathematics and its Applications, Springer.
- 2021 **G. David, M. Engelstein, M. Smit Vega Garcia & T. Toro**, *Regularity for almost-minimizers of variable coefficient Bernoulli-type functionals*, Mathematische Zeitschrift, 299(3), 2131-2169 2021, arXiv:1909.05043.
- 2021 **M. Akman, A. Banerjee & M. Smit Vega Garcia**, *On a Bernoulli-type overdetermined free boundary problem*, Ann. Fenn. Math., vol. 46, no. 2, pp. 601-618, Aug. 2021, arXiv:1911.02801.
- 2020 **M. Allen & M. Smit Vega Garcia**, *The fractional unstable obstacle problem*, Nonlinear Analysis, Vol 193, April 2020, arXiv:1811.12497.
- 2020 **S. Jeon, A. Petrosyan & M. Smit Vega Garcia**, *Almost minimizers for the thin obstacle problem with variable coefficients*, arXiv:2007.07349.
- 2018 **N. Garofalo, A. Petrosyan & M. Smit Vega Garcia**, *The singular free boundary in the Signorini problem for variable coefficients*, Indiana Univ. Math. J. 2018 67: 5, pages 1893-1934.
- 2017 **A. Banerjee, M. Smit Vega Garcia & A. K. Zeller**, *Higher regularity of the free boundary in the parabolic Signorini problem*, Calc. Var. 2017 56: 7. doi:10.1007/s00526-016-1103-7, arXiv:1601.02976.
- 2017 **N. Garofalo, A. Petrosyan, C. Pop & M. Smit Vega Garcia**, *Regularity of the free boundary for the obstacle problem for the fractional Laplacian with drift*, Annales Henri Poincaré, Analyse Non Linéaire, Volume 34, Issue 3, May-June 2017, pages 533-570, arXiv:1509.06228.
- 2016 **M. Smit Vega Garcia, E. Varvaruca & G. S. Weiss**, *Singularities in ElectroHydroDynamic Flows*, Archive for Rational Mechanics and Analysis, Nov 2016, Volume 222, Issue 2, pages 573 - 601, arXiv:1512.04798.
- 2016 **N. Garofalo, A. Petrosyan & M. Smit Vega Garcia**, *An epiperimetric inequality approach to the regularity of the free boundary in the Signorini problem with variable coefficients*, Journal de Mathématiques Pures et Appliquées, Volume 105, Issue 6, June 2016, pages 745-787, arXiv:1501.06498.
- 2014 **N. Garofalo & M. Smit Vega Garcia**, *New monotonicity formulas and the optimal regularity in the Signorini problem with variable coefficients*, Advances in Mathematics, Volume 262, Sep 2014, pages 682-750.

Awards

- 2018 **Nominated as an outstanding faculty member**, Panhellenic community at UW.
- 2012 **Committee for the Education of Teaching Assistants teaching award**, Purdue University.

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- 2011 **Purdue University Math Department Excellence in Teaching award for 2011-12.**
- 2006 **Graduated with honors**, *Universidade de Sao Paulo*.

Advising/mentoring

- 2022 **Master's advisor**, *Student: Maia Richards-Dinger*, Project: "SIR Models of Epidemics on Networks", WWU.
- 2022 **Graduate Directed Independent Study advisor**, *Students: Zachary Wall & Caleb Stromberg*, Project: "Mathematical Inequalities", WWU.
- 2021 **Master's advisor**, *Student: Tyler Fallis*, Project: "Pontryagin's Maximum Principle", WWU.
- 2021 **Senior project advisor**, *Student: Michael Dymek*, Project: "The Poincaré-Bendixon Theorem", WWU.
- 2020-2021 **Master's advisor**, *Student: Monte Whalen*, Project: "Uncertainty Principles and Gabor Frames", WWU.
- 2019-2020 **Master's advisor**, *Student: Nicholas Harrison*, Project: "Geometry of Caccioppoli Sets and Perimeter Minimizers", WWU.
- 2020 **Undergraduate project advisor**, *Student: Max Cannella*, Project: "Obstacle problems", WWU.
- 2019 **Undergraduate project advisor**, *Student: Elias Bashir*, Project: "An Introduction to Mathematical reasoning", WWU.
- 2019-2020 **Senior/Honor's Project advisor**, *Student: Michael Albert*, Project: "Conformal mappings", WWU.
- 2017 **Undergraduate project mentor**, *Student: Sebastian Torres*, Project: "Topics in Differential Equations", UW.
- 2017 **Mentor of a group**, *WXML: Washington Experimental Mathematics Lab*.
- 2013 **Mentor of two new grad students**, *AWMentor, Department of Mathematics, Purdue University*.

Talks

Upcoming

- 2024 **New trends in Nonlinear PDEs, Physics and Geometry**, *Universidad de Granada, Spain*.
- 2023 **13th AIMS Conference on Dynamical Systems, Differential Equations and Applications**, *Special Session on Recent developments in Nonlinear PDEs, non-uniformly elliptic problems and related topics*.
- 2023 **AMS Spring Central Sectional Meeting**, *Special Session "On the interface of geometric measure theory and harmonic analysis"*, University of Cincinnati.
- 2023 **Brigham Young University**, *Applied Math Seminar*.
- 2023 **UW Math Day**.
- 2023 **Analysis and PDE seminar**, *University of Minnesota*.
- 2023 **Special Session on "Free Boundary Problems and Related Topics"**, *ICMC Summer Meeting on Differential Equations - 2023 Chapter, ICMC-USP*.

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Given

- 2022 **Almgren-type monotonicity formulas**, *2022 Pacific Rim Mathematical Association Congress*, Special Session “Harmonic Functions and Laplace Eigenfunctions”, Vancouver, Canada.
- 2022 **Almgren-type monotonicity formulas**, *Extremal Problems in Harmonic Analysis, Convexity, and Bellman Functions*, ICERM.
- 2022 **Separation of a lower-dimensional free boundary for almost minimizers**, *Mathematisches Forschungsinstitut Oberwolfach*, Workshop on Calculus of Variations.
- 2022 **Cafe Matematico**, *Universidade Federal de Lavras*.
- 2022 **Branch points for (almost-)minimizers of two-phase free boundary problems**, *Regularity Theory for Free Boundary and Geometric Variational Problems II*, Pisa, Italy.
- 2022 **What do picanhas have to do with differential equations?**, *LatinX in the Mathematical Sciences Conference*, Special Session on Harmonic Analysis and Partial Differential Equations, IPAM, USA.
- 2022 **Branch points for (almost-)minimizers of two-phase free boundary problems**, *Center for Mathematical Modeling PDE Seminar*, Universidad de Chile.
- 2022 **The fractional unstable obstacle problem**, *Joint Mathematics Meetings*, SIAM Minisymposium on “Nonlocal and fractional problems in Analysis and PDEs”.
- 2022 **On a Bernoulli-type overdetermined free boundary problem**, *Joint Mathematics Meetings*, AMS Special Session on “Analysis in Metric Spaces (a Mathematics Research Communities Session)”, USA.
- 2022 **Almost-Minimizers of Two-Phase Free Boundary Problems**, *Nonlinear Analysis Seminar*, Rutgers University.
- 2022 **Almost minimizers for obstacle problems**, *Applied Analysis Seminar*, Louisiana State University.
- 2022 **The Free Boundary for Almost-Minimizers of Two-Phase Free Boundary Problems**, *SIAM 2022 Conference on Analysis of Partial Differential Equations*, Minisymposium: Free Boundaries, Regularity Theory and Degenerate Models: Synergies and Novelties.
- 2022 **Almost minimizers for obstacle problems**, *Trimester Program “Interactions between Geometric measure theory, Singular integrals, and PDEs”*, Hausdorff Research Institute for Mathematics, Bonn, Germany.
- 2022 **The free boundary for almost-minimizers of two-phase free boundary problems**, *B^1_- : PDE from the South*, Advanced School.
- 2021 **Regularity of almost minimizers with free boundary**, *Special Session in “Theoretical and Applied Aspects of Nonlocal Equations”*, AMS Fall Central Sectional Meeting, Creighton University, USA.
- 2021 **On a Bernoulli-type overdetermined free boundary problem**, *Special Session in “Analysis and Differential Equations at Undergraduate Institutions”*, AMS Fall Central Sectional Meeting, Creighton University, USA.
- 2021 **Almost minimizers for obstacle problems**, *Math Seminar*, Montana State University.
- 2021 **Almost minimizers for obstacle problems**, *Special Session in “Harmonic Analysis” at the 33rd Brazilian Mathematical Colloquium*.

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- 2021 **O que conecta o derretimento do gelo, picanha e muros?**, *Cibercoloquio Latinoamericano de Matemáticas*.
- 2021 **Regularity of almost minimizers with free boundary**, *Lisbon Webinar in Analysis and Differential Equations*.
- 2021 **Regularity of almost minimizers with free boundary**, *50th Barrett Memorial Lectures: Approximation, applications and analysis of nonlocal, nonlinear models*, University of Tennessee, USA.
- 2021 **Almost minimizers for obstacle problems**, *HA-GMT-PDE Seminar*, University of Minnesota/University of Missouri, USA.
- 2021 **Regularity of almost minimizers with free boundary**, *Web Seminar on Linear PDEs and Related Topics*, ICMC USP São Carlos, Brazil.
- 2021 **On a Bernoulli-type overdetermined free boundary problem**, *ICMC USP São Carlos, Summer Meeting on Differential Equations*, Special Session on “Linear Equations”, Brazil.
- 2021 **Almost minimizers for obstacle problems**, *Mini-symposium “Recent Advances in Partial Differential Equations”*, SIDIM XXXVI, Seminario Interuniversitario de Investigación en Ciencias Matemáticas.
- 2021 **Almost minimizers for obstacle problems**, *2021 Joint Mathematics Meetings, Special session on “Analysis and Differential Equations at Undergraduate Institutions”*, USA.
- 2020 **Almost minimizers for obstacle problems**, *Geometric Analysis Seminar*, CUNY, USA.
- 2020 **Regularity of almost minimizers with free boundary**, *Online seminar: PUC-Rio Webinars on Analysis and PDEs*, Pontifical Catholic University of Rio de Janeiro, Brazil.
- 2020 **On a Bernoulli-Type Overdetermined Free Boundary Problem**, *Analysis/Probability seminar*, University of Connecticut, USA.
- 2020 **The fascinating world of metric spaces**, Carleton College, USA.
- 2020 **Analysis and geometry of free boundaries: recent developments**, *Colloquium*, Oregon State University, USA.
- 2020 **Regularity of almost minimizers with free boundary**, *Joint Mathematics Meeting, Special Session on Interfaces between PDEs and geometric measure theory (Associated with AMS Maryam Mirzakhani Invited Address Tatiana Toro)*, Denver, USA.
- 2019 **Analysis and geometry of free boundaries: recent developments**, *Colloquium*, University of Minnesota, USA.
- 2019 **Analysis and geometry of free boundaries: recent developments**, *Applied Math And Analysis Seminar*, Duke University, USA.
- 2019 **Analysis and geometry of free boundaries: recent developments**, *Analysis Seminar*, Cornell University, USA.
- 2019 **Analysis and geometry of free boundaries: recent developments**, *Analysis Seminar*, University of Toronto, Canada.
- 2019 **Free boundary problems**, *Mathematics Seminar*, The Abdus Salam International Centre for Theoretical Physics, Italy.

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- 2019 **Regularity of almost minimizers with free boundary**, *Nonlinear PDEs Meeting*, KTH, Sweden.
- 2019 **The fractional unstable obstacle problem**, *32^o Colóquio Brasileiro de Matemática, Special Session on Equações Diferenciais Parciais e Aplicações*, IMPA, Brazil.
- 2019 **The fractional unstable obstacle problem**, *Analytic and Geometric Aspects of PDEs*, Politecnico di Milano, Italy.
- 2019 **The fractional unstable obstacle problem**, *Computational and Applied Math and PDE seminar*, The University of Chicago, USA.
- 2019 **The fractional unstable obstacle problem**, *AMS Spring Eastern Sectional Meeting, Special Session on Regularity Theory of PDEs and Calculus of Variations on Domains with Rough Boundaries*, University of Connecticut Hartford, USA.
- 2019 **The fractional unstable obstacle problem**, *AMS Spring Central and Western Joint Sectional Meeting, Special Session on Topics at the Interface of Analysis and Geometry*, University of Hawaii at Manoa, USA.
- 2019 **The fractional unstable obstacle problem**, *Geometry-Topology Seminar*, Oregon State University, USA.
- 2019 **Free boundary problems**, *Colloquium*, Oregon State University, USA.
- 2019 **The fractional unstable obstacle problem**, *Geometric Measure Theory and Free Boundary Problems*, Hausdorff Research Institute for Mathematics, Germany.
- 2019 **Recent developments in the thin obstacle problem**, *Joint Mathematics Meetings, AMS Special Session on Latinx in Math*, USA.
- 2018 **Higher regularity of the free boundary in the parabolic Signorini problem**, *AMS Fall Central Sectional Meeting, Special Session on Recent Advances in Nonlinear PDE*, University of Michigan, USA.
- 2018 **Recent developments in the thin obstacle problem**, *Geometric Analysis Seminar, The University of Tennessee*, Knoxville, USA.
- 2018 **The fascinating world of metric spaces**, *Summer Institute for Mathematics at the University of Washington*, University of Washington, USA.
- 2018 **Recent developments in the thin obstacle problem**, *Nonlocal interactions in partial differential equations and geometry*, Mittag-Leffler Institute, Sweden.
- 2018 **Higher regularity of the free boundary in the parabolic Signorini problem**, *AMS Spring Eastern Sectional Meeting, Special Session on Regularity of PDEs on Rough Domains*, Northeastern University, USA.
- 2018 **Higher regularity of the free boundary in the parabolic Signorini problem**, *Ohio River Analysis Meeting 2018*, University of Kentucky in Lexington, USA.
- 2017 **The singular free boundary in the Signorini problem**, *IV International Symposium on Nonlinear PDEs and Free Boundary Problems, Facultad de Ciencias Exactas y Naturales of the University of Buenos Aires*, Argentina.
- 2017 **The singular free boundary in the Signorini problem**, *Colloquium*, Western Washington University, USA.
- 2017 **The singular free boundary in the Signorini problem**, *Analysis Seminar*, University of Pennsylvania, USA.
- 2017 **The singular free boundary in the Signorini problem**, *Analysis Seminar*, Temple University, USA.

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- 2017 **Melting of Ice, Obstacles & Walls: An Introduction to Free Boundary Problems**, *Colloquium, Reed College, USA*.
- 2017 **The singular free boundary in the Signorini problem**, *AMS Fall Southeastern Sectional Meeting, Special Session on Nonlinear Elliptic Partial Differential Equations*, University of Central Florida, USA.
- 2017 **The singular free boundary in the Signorini problem**, *Prairie Analysis Seminar 2017*, Kansas State University, USA.
- 2017 **An exploration of change over time: the world of differential equations**, *Summer Institute for Mathematics at the University of Washington*, University of Washington, USA.
- 2017 **The singular free boundary in the Signorini problem**, *Mathematical Congress of the Americas, Special Session Advances in Analysis, PDE's and Related Applications*, McGill University, Montreal, Canada.
- 2017 **The singular free boundary in the Signorini problem**, *Nonlinear Analysis Conference*, Notre Dame's Rome Global Gateway, Rome, Italy.
- 2017 **Melting of ice, meatloaf and wall problems: an introduction to free boundary problems**, *Current Topics Seminar*, University of Washington, USA.
- 2017 **The singular free boundary in the Signorini problem**, *Rocky Mountain Partial Differential Equations*, Provo, Utah, USA.
- 2017 **The singular free boundary in the Signorini problem**, *The Seventh Ohio River Analysis Meeting*, University of Cincinnati, USA.
- 2017 **The obstacle problem for the fractional Laplacian with drift**, *Connections For Women: Harmonic Analysis, MSRI*, USA.
- 2016 **The singular free boundary in the Signorini problem**, *PDE seminar*, University of Minnesota, USA.
- 2016 **The obstacle problem for the fractional Laplacian with drift**, *AMS Fall Central Sectional Meeting, Special Session on New developments in the analysis of nonlocal operators*, University of St. Thomas, USA.
- 2016 **The singular free boundary in the Signorini problem**, *Rainwater Seminar*, University of Washington, USA.
- 2016 **The obstacle problem for the fractional Laplacian with drift**, *Analysis seminar*, University of Wisconsin-Madison, USA.
- 2016 **The obstacle problem for the fractional Laplacian with drift**, *XIII-ème Colloque Franco-Roumain de Mathématiques Appliquées, thematic session: Problèmes à frontière libre*, Alexandru Ioan Cuza University of Iasi, Romania.
- 2016 **The obstacle problem for the fractional Laplacian with drift**, *Justus Liebig University Giessen*, Germany.
- 2016 **New developments in the lower dimensional obstacle problem**, *Ohio University*, USA.
- 2016 **The obstacle problem for the fractional Laplacian with drift**, *DM-UFSCar Conference on Analysis of PDEs*, Brazil.
- 2015 **The obstacle problem for the fractional Laplacian with drift**, *30th Colóquio Brasileiro de Matemática, thematic session: Equações Diferenciais Parciais*, IMPA, Brazil.

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- 2015 **An epiperimetric inequality approach to the regularity of the free boundary in the Signorini Problem**, *Workshop for Women in Analysis and PDE*, Institute for Mathematics and its Applications in Minneapolis, USA.
- 2015 **New developments in the lower dimensional obstacle problem**, *Focus session on Free Boundary Problems*, X Americas Conference, Argentina.
- 2015 **An epiperimetric inequality approach to the regularity of the free boundary in the thin obstacle problem**, *Meeting of the European Women in Mathematics - German Chapter*, Section on Analysis, Castle Rauischholzhausen, Germany.
- 2014 **New developments in the lower dimensional obstacle problem**, *I Brazilian Congress of Young Researchers in Pure and Applied Mathematics*, Partial Differential Equations Special Session, IME-USP, Brazil.
- 2014 **Optimal regularity of the solution and an epiperimetric inequality approach to the regularity of the free boundary in the Signorini problem**, *Seminário de Equações Diferenciais*, UNICAMP, Brazil.
- 2014 **New developments in the lower dimensional obstacle problem**, *Graduate Seminar on Advanced Topics in PDE*, University of Bonn, Germany.
- 2014 **New developments in the lower dimensional obstacle problem**, *Analysis Seminar*, University of Reading, UK.
- 2014 **New developments in the lower-dimensional obstacle problem with Lipschitz coefficients**, *Homogenization and Random Phenomenon program*, Institut Mittag-Leffler, Sweden.
- 2014 **New developments in the lower dimensional obstacle problem**, *Topics in Geometric Analysis*, Albert-Einstein-Institut Potsdam, Germany.
- 2014 **The lower dimensional obstacle problem**, *Oberseminar Analysis*, Heinrich Heine University, Germany.
- 2014 **Some important ideas in free boundaries**, *Analysis Mitarbeiterseminar*, Heinrich Heine University, Germany.
- 2014 **New monotonicity formulas and the optimal regularity in the Signorini problem with variable coefficients**, *Joint Mathematics Meetings*, AMS Special Session on Advances in Analysis and PDEs, USA.
- 2013 **New developments in the thin obstacle problem with Lipschitz coefficients**, *Partial Differential Equations Seminar*, Ohio State University, USA.
- 2013 **The Signorini problem with Lipschitz coefficients: optimal regularity and new monotonicity formulas**, *Faculty and Graduate Research Colloquium*, Ball State University, USA.
- 2013 **New monotonicity formulas and the optimal regularity in the thin obstacle problem with Lipschitz coefficients**, *Analysis Seminar*, Temple University, USA.
- 2013 **Optimal regularity in the thin obstacle problem with Lipschitz coefficients and new monotonicity formulas**, *Complex Analysis and Geometry Seminar*, Rutgers University, USA.
- 2013 **The thin obstacle problem: new monotonicity formulas and optimal regularity**, *PDE, Complex Analysis and Differential Geometry seminar*, University of Notre Dame, USA.

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- 2013 **Optimal regularity in the Signorini problem with Lipschitz variable coefficients**, *VII Workshop on Geometric Analysis of PDEs and Several Complex Variables*, Brazil.
- 2013 **Optimal regularity in the Signorini problem with variable coefficients and new monotonicity formulas**, *AMS Western Fall Sectional Meeting*, Special Session on From Harmonic Analysis to Partial Differential Equations: In Memory of Victor Shapiro, University of California, Riverside, USA.
- 2013 **New developments in the thin obstacle problem with Lipschitz coefficients**, *Nonlinear PDEs Learning Seminar*, University of California, Irvine, USA.
- 2013 **New monotonicity formulas and the optimal regularity in the Signorini problem with variable coefficients**, *33rd Southeastern-Atlantic Regional Conference on Differential Equations*, The University of Tennessee, USA.
- 2013 **Optimal regularity in the Signorini problem with Lipschitz variable coefficients**, *PDE seminar*, Vanderbilt University, USA.
- 2013 **The salad bowl problem, ants and PDEs**, *Student Colloquium*, Purdue University.
- 2013 **Optimal regularity in the Signorini problem with Lipschitz variable coefficients**, *Midwest WIMS*, University of Illinois at Chicago, USA.
- 2013 **The Grad Student Guide to PDEs**, *Student Colloquium*, Purdue University, USA.
- 2012 **Optimal interior regularity in the obstacle problem and Hausdorff measure estimate of the free boundary**, *Student PDE Seminar*, Purdue University, USA.
- 2011 **The intriguing and elusive Bernstein problem**, *Student Colloquium*, Purdue University, USA.
- 2007 **The Theorems of Seidenberg-Tarski and Puiseux**, *III Symposium of Undergraduate and Graduate Research of IME-USP*, Universidade de Sao Paulo, Brazil.
- 2005 **Convergence of the Fourier Series**, *I Symposium of Undergraduate and Graduate Research of IME-USP*, Universidade de Sao Paulo, Brazil.

Workshops, Colloquia, Schools, Meetings, Conferences

Upcoming

- 2024 **New trends in Nonlinear PDEs, Physics and Geometry**, *Universidad de Granada, Spain*.
- 2023 **Regularity Theory for Free Boundary and Geometric Variational Problems III**, Italy.
- 2023 **13th AIMS Conference on Dynamical Systems, Differential Equations and Applications**.
- 2023 **AMS Spring Central Sectional Meeting**, University of Cincinnati.
- 2023 **ICMC Summer Meeting on Differential Equations - 2023 Chapter**.

Attended

- 2022 **2022 Pacific Rim Mathematical Association Congress**, Vancouver, Canada.
- 2022 **Extremal Problems in Harmonic Analysis, Convexity, and Bellman Functions**, ICERM.
- 2022 **Geometric aspects of nonlinear partial differential equations**, (Online) at *Institut Mittag-Leffler*.

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- 2022 **Calculus of Variations**, *Mathematisches Forschungsinstitut Oberwolfach*, Germany.
- 2022 **Theoretical and Applied Aspects for nonlocal Models**, Banff Workshop.
- 2022 **Regularity Theory for Free Boundary and Geometric Variational Problems II**, Pisa, Italy.
- 2022 **LatinX in the Mathematical Sciences Conference**, IPAM, USA.
- 2022 **Joint Mathematics Meeting**, USA.
- 2022 **PNW MAA Section Meeting**, *Western Washington University*, USA.
- 2022 **SIAM PDE Conference**.
- 2022 **Trimester Program “Interactions between Geometric measure theory, Singular integrals, and PDEs”**, *Hausdorff Research Institute for Mathematics*, Bonn, Germany.
- 2022 **ICMC-USP Summer Meeting**.
- 2021 **Blackwell Tapia Conference 2021**, USA.
- 2021 **Field of Dreams Conference**, USA.
- 2021 **AMS Fall Central Sectional Meeting**, *Creighton University*, USA.
- 2021 **15th International Conference on Free Boundary Problems: Theory and Applications 2020**.
- 2021 **33rd Brazilian Mathematical Colloquium**.
- 2021 **Latinx Mathematicians Research Community**, *American Institute of Mathematics*, USA.
- 2021 **50th Barrett Memorial Lectures: Approximation, applications and analysis of nonlocal, nonlinear models**.
- 2021 **paraDIGMS Spring Conference**.
- 2021 **ICMC USP São Carlos Summer Meeting on Differential Equations**.
- 2021 **Seminario Interuniversitario de Investigación en Ciencias Matemáticas**.
- 2021 **2021 Joint Mathematics Meetings, Special session on “Analysis and Differential Equations at Undergraduate Institutions”**.
- 2020 **Summer school on geometric measure theory and partial differential equations**.
- 2020 **One World PDE Seminar**.
<https://people.bath.ac.uk/mw2319/owpde/>
- 2020 **PDE Seminar via Zoom**.
<https://nguyenquochung1241.wixsite.com/qhung/post/pde-seminar-via-zoom>
- 2020 **PUC-Rio Webinars on Analysis and PDEs**.
<https://sites.google.com/view/webinarpde/home>
- 2020 **paraDIGMS Fall Conference**.
- 2020 **Field of Dreams**.
- 2020 **Advocating for Students of Color: There’s More You Can Do**.
- 2020 **Joint Mathematics Meeting**, *Denver, USA*.
- 2019 **Geometric Measure Theory and Applications: From Geometric Analysis to Free Boundary Problems**, *CIME Summer School*, Italy.
- 2019 **Nonlinear PDEs**, *KTH*, Sweden.

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Google Scholar: scholar.google.com/citations?user=Ln34oaoAAAAJ

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- 2019 **32^o Colóquio Brasileiro de Matemática**, *IMPA, Brazil*.
- 2019 **Analytic and Geometric Aspects of PDEs**, *Politecnico di Milano, Italy*.
- 2019 **AMS Spring Eastern Sectional Meeting**, *University of Connecticut Hartford, USA*.
- 2019 **AMS Spring Central and Western Joint Sectional Meeting**, *University of Hawaii at Manoa, USA*.
- 2019 **Geometric Measure Theory and Free Boundary Problems**, *Hausdorff Center for Mathematics, Germany*.
- 2019 **Joint Mathematics Meeting**, *Baltimore, USA*.
- 2018 **AMS Fall Central Sectional Meeting**, *University of Michigan, Ann Arbor, USA*.
- 2018 **Calculus of Variations**, *Mathematisches Forschungsinstitut Oberwolfach, Germany*.
- 2018 **PCMI Research Program in Mathematics 2018, Harmonic Analysis**, *Park City, USA*.
- 2018 **Nonlocal interactions in partial differential equations and geometry**, *Mittag-Leffler Institute, Sweden*.
- 2018 **AMS Spring Eastern Sectional Meeting**, *Northeastern University, Boston, USA*.
- 2018 **AMS Spring Western Sectional Meeting**, *Portland State University, Portland, USA*.
- 2018 **Ohio River Analysis Meeting 2018**, *University of Kentucky, Lexington, USA*.
- 2018 **Latnix in the Mathematical Sciences Conference 2018**, *UCLA, Los Angeles, USA*.
- 2017 **IV International Symposium on Nonlinear PDEs & Free Boundary Problems**, *Facultad de Ciencias Exactas y Naturales of the University of Buenos Aires, Argentina*.
- 2017 **Harmonic Analysis and Geometric measure Theory**, *CIRM, Luminy, France*.
- 2017 **AMS Fall Southeastern Sectional Meeting**, *Orlando, USA*.
- 2017 **Prairie Analysis Seminar 2017**, *Kansas State University, Manhattan, USA*.
- 2017 **Mathematical Congress of the Americas**, *McGill University, Montreal, Canada*.
- 2017 **Nonlinear Analysis Conference**, *Notre Dame's Rome Global Gateway, Rome, Italy*.
- 2017 **Calculus of Variations and Nonlinear Partial Differential Equations**, *University of California, Berkeley, Berkeley, USA*.
- 2017 **Rocky Mountain Partial Differential Equations**, *Provo, Utah*.
- 2017 **Rivière-Fabes Symposium 2017**, *University of Minneapolis, Minneapolis, USA*.
- 2017 **The Seventh Ohio River Analysis Meeting**, *University of Cincinnati, Cincinnati, USA*.
- 2017 **Introductory Workshop: Harmonic Analysis**, *MSRI, Berkeley, USA*.
- 2017 **Connections For Women: Harmonic Analysis**, *MSRI, Berkeley, USA*.
- 2016 **AMS Fall Central Sectional Meeting**, *Minneapolis, USA*.
- 2016 **Madison Workshop in Analysis and PDE**, *University of Wisconsin-Madison, Madison, USA*.

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Google Scholar: scholar.google.com/citations?user=Ln34oaoAAAAJ

11/23

- 2016 **XIII-ème Colloque Franco-Roumain de Mathématiques Appliquées**, *Alexandru Ioan Cuza University of Iasi*, Iasi, Romania.
- 2016 **Recent Trends in Nonlinear Evolution Equations**, *CIRM*, Marseille, France.
- 2016 **DM-UFSCar Conference on Analysis of PDEs**, *UFSCar*, Sao Carlos, Brazil.
- 2015 **VIII Workshop on Geometric Analysis of PDEs and Several Complex Variables**, *Serra Negra*, Brazil.
- 2015 **30th Colóquio Brasileiro de Matemática**, *Thematic session: Equações Diferenciais Parciais*, *IMPA*, Rio de Janeiro, Brazil.
- 2015 **Geometric Analysis, Free Boundary Problems and Measure Theory**, *Max Planck Institute for Mathematics in the Sciences*, Leipzig, Germany.
- 2015 **Meeting of the European Women in Mathematics - German Chapter**, *Section on Analysis*, *Castle Rauischholzhausen*, Germany.
- 2015 **Workshop for Women in Analysis and PDE**, *Institute for Mathematics and its Applications*, Minneapolis, MN.
- 2015 **Focus session on Free Boundary Problems**, *X Americas Conference*, Buenos Aires, Argentina.
- 2014 **I Brazilian Congress of Young Researchers in Pure and Applied Mathematics**, *Partial Differential Equations Special Session*, *USP*, Sao Paulo, Brazil.
- 2014 **Homogenization and Random Phenomenon program**, *Institut Mittag-Leffler*, Djursholm, Sweden.
- 2014 **Joint Mathematics Meetings**, *Baltimore*, USA.
- 2013 **72nd Midwest PDE Seminar**, *Purdue University*, West Lafayette, USA.
- 2013 **AMS Western Fall Sectional Meeting**, *University of California, Riverside*, Riverside, USA.
- 2013 **ERC-Workshop on Geometric Measure Theory, Analysis in Metric Spaces and Real Analysis**, *Centro di Ricerca Matematica Ennio De Giorgi*, Pisa, Italy.
- 2013 **ERC School on Geometric Measure Theory and Real Analysis**, *Centro di Ricerca Matematica Ennio De Giorgi*, Pisa, Italy.
- 2013 **Southeastern-Atlantic Regional Conference on Differential Equations 2013**, *The University of Tennessee*, Knoxville, USA.
- 2013 **VII Workshop on Geometric Analysis of PDEs and Several Complex Variables**, *Serra Negra*, Brazil.
- 2013 **2013 CNA Summer School**, *Topics in Nonlinear PDEs and Calculus of Variations, and Applications in Materials Science*, *Carnegie Mellon University*, Pittsburgh, USA.
- 2013 **Recent Advances in Nonlinear Partial Differential Equations**, *The Courant Institute*, NY, USA.
- 2013 **Conference on Nonlinear Elliptic Equations**, *Rutgers University*, New Brunswick, USA.
- 2013 **71st Midwest Partial Differential Equations Seminar**, *University of Michigan*, Ann Arbor, USA.
- 2013 **Midwest WIMS**, *University of Illinois at Chicago*, Chicago, USA.
- 2013 **11th Annual Graduate Student Topology and Geometry Conference**, *Notre Dame University*, South Bend, USA.

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- 2013 **AWM Research Symposium 2013**, *Santa Clara University*, Santa Clara, USA.
- 2012 **Workshop for women in Analysis and PDE**, *IMA*, Minneapolis, USA.
- 2012 **5th Symposium on Analysis and PDEs**, *Purdue University*, West Lafayette, USA.
- 2012 **Concentration month on nonlinear elliptic PDEs**, *University of Chicago*, Chicago, USA.
- 2011 **68th Midwest PDE Seminar**, *Notre Dame University*, South Bend, USA.
- 2011 **7th School on Analysis and Geometry in Metric Spaces**, *Levico Terme, Italy*.
- 2009 **III Brazilian School of Differential Equations**, *Universidade de Sao Paulo*, Sao Paulo, Brazil.
- 2009 **Workshop on Geometric Analysis of PDE and Several Complex Variables**, *Serra Negra, Brazil*.
- 2007 **Workshop on Geometric Analysis of PDE and Several Complex Variables**, *Serra Negra, Brazil*.
- 2007 **III Symposium of Undergraduate and Graduate Research of IME-USP**, *Universidade de Sao Paulo*, Sao Paulo Brazil.
- 2005 **25 Brazilian Colloquium of Mathematics**, *IMPA*, Rio de Janeiro, Brazil.
- 2005 **I Symposium of Undergraduate and Graduate Research of IME-USP**, *Universidade de Sao Paulo*, Sao Paulo, Brazil.

Poster presentations

- 2018 **The singular free boundary in the Signorini problem for variable coefficients**, *Latinx in the Mathematical Sciences Conference 2018*, UCLA, USA.
- 2017 **The singular free boundary in the Signorini problem for variable coefficients**, *Harmonic Analysis and Geometric measure Theory*, CIRM, Luminy, France.
- 2017 **The singular free boundary in the Signorini problem**, *Connections For Women: Harmonic Analysis*, MSRI, USA.
- 2015 **The obstacle problem for the fractional Laplacian with drift**, *VIII Workshop on Geometric Analysis of PDEs and Several Complex Variables*, Brazil.
- 2013 **Optimal regularity in the Signorini problem with Lipschitz variable coefficients**, *2013 CNA Summer School*, Topics in Nonlinear PDEs and Calculus of Variations, and Applications in Materials Science, Carnegie Mellon University, USA.
- 2013 **Optimal regularity in the Signorini problem with Lipschitz variable coefficients**, *71st Midwest Partial Differential Equations Seminar*, University of Michigan, USA.

Teaching

At Western Washington University

- Winter 2023 **MATH 422/522 - Methods of Mathematical Analysis II.**
- Winter 2023 **MATH 331 - Ordinary Differential Equations.**
- Fall 2022 **MATH 438/538 - Introduction to Complex Variables**, 19 students.
- Fall 2022 **MATH 331 - Ordinary Differential Equations**, 27 students.
- Spring 2022 **MATH 331 - Ordinary Differential Equations**, 16 students.

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- Spring 2022 **MATH 204 - Elementary Linear Algebra**, 16 students.
- Winter 2022 **MATH 226 - Limits and infinite Series**, 23 students.
- Winter 2022 **MATH 312 - Proofs in Elementary Analysis**, 17 students.
- Fall 2021 **MATH 421/521 - Methods of Mathematical Analysis I**, 19 students.
- Fall 2021 **MATH 331 - Ordinary Differential Equations**, 29 students.
- Spring 2021 **MATH 331 - Ordinary Differential Equations**, 30 students.
- Spring 2021 **MATH 432 - Systems of Differential Equations**, 25 students.
- Winter 2021 **MATH 331 - Ordinary Differential Equations**, 33 students.
- Winter 2021 **MATH 524 - Topics in Analysis**, 5 students.
- Fall 2020 **MATH 204 - Elementary Linear Algebra**, 35 students.
- Fall 2020 **MATH 226 - Limits and infinite Series**, 30 students.
- Spring 2020 **MATH 226 - Limits and infinite Series**, 24 students.
- Spring 2020 **MATH 432 - Systems of Differential Equations**, 27 students.
- Winter 2020 **MATH 331 - Ordinary Differential Equations**, 37 students.
- Winter 2020 **MATH 204 - Elementary Linear Algebra**, 30 students.
- Fall 2019 **MATH 430/530 - Fourier Series and Applications to Partial Differential Equations**, 26 students.
- Spring 2019 **MATH 527 - Real Analysis**, 17 students.
- Winter 2019 **MATH 204 - Elementary Linear Algebra**, 31 students.
- Winter 2019 **MATH 331 - Ordinary Differential Equations**, 34 students.
- Fall 2018 **MATH 331 - Ordinary Differential Equations**, 27 students.
- Fall 2018 **MATH 224 - Multivariable Calculus and Geometry I**, 35 students.
- At the University of Washington, as the instructor*
- Spring 2018 **MATH 309 - Linear Analysis**, 100 students in 2 sections.
- Winter 2018 **MATH 300 - Introduction to Mathematical Reasoning**, 30 students.
- Fall 2017 **MATH 424 - Fundamental Concepts of Analysis**, 40 students.
- Winter 2017 **Minicourse on Free Boundary Problems**, 5 PhD students.
- Spring 2017 **MATH 324 - Advanced Multivariable Calculus I**, 50 students.
- Winter 2017 **MATH 307 - Introduction to Differential Equations**, 47 students.
- Fall 2016 **MATH 324 - Advanced Multivariable Calculus I**, 67 students (in 2 sections).
- At the University of Duisburg-Essen*
- Spring 2016 **An Introduction to free boundary problems**, Weekly seminar, An Introduction to free boundary problems, 5 graduate students.
- Spring 2016 **Analysis II, second analysis course for Math students**, Recitation Instructor, 5 students.
- At Purdue University*
- Spring 2011 **MA22400 - Introductory Analysis II**, Instructor, 57 students (in 2 sections).
- Fall 2010 **MA15300 - Algebra and Trigonometry I**, Instructor, 75 students (in 2 sections).
- Spring 2010 **MA16200 - Plane Analytic Geometry And Calculus II**, Recitation Instructor, 68 students (in 2 sections).

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Fall 2009 **MA26100 - Multivariate Calculus**, *Recitation Instructor*, 69 students (in 2 sections).

Students Evaluations (from the WWU Course Evaluation System)

All grades are means out of 5 of each of my sections.

Course	(1)	(2)
MATH 331 (Winter 2020)	4.81	4.88
MATH 204 (Winter 2020)	4.59	4.78
MATH 430/530 (Fall 2019)	4.90	4.75
MATH 527 (Spring 2019)	4.80	4.82
MATH 331 (Winter 2019)	4.81	4.61
MATH 204 (Winter 2019)	4.46	4.32
MATH 331 (Fall 2018)	4.55	4.30
MATH 224 (Fall 2018)	4.28	3.92

- (1) The instructors' contribution overall to the course was:
- (2) The instructors' effectiveness in teaching the subject matter was:

Students Evaluations (from the UW Course Evaluation System)

All grades are adjusted combined medians out of 5 of each of my sections.

Course	(1)	(2)
MATH 324 (Fall 2016)	4.8, 5.0	4.8, 5.0
MATH 307 (Winter 2017)	5.0	5.0
MATH 324 (Spring 2017)	5.0	5.0
MATH 424 (Fall 2017)	5.0	5.0
MATH 300 (Winter 2018)	5.0	5.0
MATH 309 (Winter 2018)	4.9, 5.0	4.9, 4.9

- (1) The instructors' contribution to the course was:
- (2) The instructors' effectiveness in teaching the subject matter was:

Students Evaluations (from the Purdue Instructor Course Evaluation System)

All grades are group medians out of 5 of each of my sections.

Course	(1)	(2)	(3a)	(3b)
MA26100	4.3, 4.5	4.4, 4.6	4.2, 4.3	N/A
MA16200	4.8, 5.0	4.8, 4.9	4.7, 4.9	N/A
MA15300	4.4, 4.8	4.8, 4.9	N/A	4.7, 4.8
MA22400	4.6, 4.7	4.9, 4.9	N/A	4.8, 4.8

- (1) Overall, I rate this instructor as:
- (2) My instructor was well-prepared and organized in class:
- (3a) My Recitation Instructor helped me understand the material:
- (3b) My instructor gave clear and helpful explanations:

Participation in academic committees

2023 **Master's committee of Michael Dymek**, WWU, USA.

2023 **Master's committee of Gideon Tveten**, WWU, USA.

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- 2022 Senior project committee of Kassio Halsinger, WWU, USA.
- 2022 Master's committee of Zach Wall, WWU, USA.
- 2021 Master's committee of Will Murray, WWU, USA.
- 2021 Master's committee of Matthew Scoggins, WWU, USA.
- 2020 Master's committee of David Seaman, WWU, USA.
- 2019 Master's committee of Jordan McCaslin, WWU, USA.
- 2016 Qualifying exam committee of Giane Rampasso, UNICAMP, Brazil.

Service for the Profession

External Panels

- 2023 NSF reviewer and panelist.
- 2022 NSF reviewer.
- 2022 NSF reviewer and panelist, *HSI Program*.
- 2022 NSF reviewer and panelist.
- 2021 NSF reviewer and panelist.
- 2021 NSF reviewer and panelist, *HSI Program*.
- 2021 NSF reviewer and panelist.
- 2020 NSF reviewer and panelist.
- 2019 NSF reviewer and panelist, *HSI Program*.

Upcoming

- 2023 Co-organizer of the Special Session “Geometric and Analytic methods in PDE” (with Mark Allen, and Dennis Kriventsov), *AMS Sectional Meeting at the University of Cincinnati*.
- 2023 Co-organizer of the Special Session “Free Boundary Problems and Related Topics” (with João Vitor da Silva, and Disson dos Prazeres), *ICMC-USP Summer Meeting*.

Previous

- 2022 Co-organizer of the 2022 PNW MAA Section Meeting, Western Washington University.
- 2022 Co-organizer of the Special Session “Recent trends in free boundary problems and related topics” (with João Vitor da Silva, Gabrielle Nornberg and Disson dos Prazeres), *ICMC-USP Summer Meeting*.
- 2020 Co-organizer of the AMS Special session “Free Boundary Problems Arising in Applications” (with Mark Allen & Braxton Osting), *AMS Fall Western Sectional Meeting*, University of Utah.
- 2020 Co-organizer of a minisymposium in free boundary regularity (with Henrik Shahgholian), *15th International Conference on Free Boundary Problems: Theory and Applications 2020*, Humboldt University, Berlin, Germany.
Postponed to 2021 due to Covid-19.
- 2019 Co-organizer of the AMS Special Session on “Interactions between Geometric Measure Theory, PDE, and Harmonic Analysis” (with Max Engelstein, Mark Allen & Spencer Hughes, *AMS Spring Central and Western Joint Sectional Meeting*, University of Hawaii at Manoa.

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- 2018 **Co-organizer of the Special Session “Tópicos Atuais de Análise Global e Equações Diferenciais Parciais”** (with Luiz Hartmann & Edgard Pimentel), *III Congresso Brasileiro de Jovens Pesquisadores em Matemática Pura, Aplicada e Estatística*, Parana, Brazil.
- 2018 **Co-organizer of the AMS Special Session on “Geometric Measure Theory and Partial Differential Equations”**, (with Mark Allen & Spencer Hughes, *AMS Spring Western Sectional Meeting*, Portland State University.
- Connected to EID**
- 2022 **Reviewer**, *Banff International Research Station*, evaluated the equity, diversity and inclusion merit of proposals.
- 2022 **Bio Writer**, *AWM/MAA Playing Cards project “Notable Women in Mathematics” set 2*.
- 2022 **Selection Committee**, *AWM/MAA Playing Cards project “Notable Women in Mathematics” set 2*.
- 2022 **Data collection committee**, *AWM/MAA project “Notable Women in Mathematics” set 2*.
- 2022 **AWM Mentor Network**, *Mentor of two undergraduate students*.
- 2022 **AWM Essay Contest judge**.
- 2021 **Reviewer**, *Banff International Research Station*, evaluated the equity, diversity and inclusion merit of proposals.
- 2021-2024 **AWM SACNAS Liaison Committee**.
- 2020-2023 **AWM Media Committee**.
- 2021 **Talk given at the Summer Institute for Mathematics at the University of Washington (SIMUW)**, (*a Summer camp for high school students*), How to catch a turtle.
- 2021 **AWM Essay Contest judge**.
- 2021 **Translator of biographies of Mathematicians to Portuguese**, *Lathisms*.
- 2020- **Mentor**, *The National Alliance for Doctoral Studies in the Mathematical Sciences (Math Alliance)*.
- 2020 **Bio Writer**, *AWM/MAA Playing Cards project “Notable Women in Mathematics”*.
- 2020 **Selection Committee**, *AWM/MAA Playing Cards project “Notable Women in Mathematics”*.
- 2020 **AWM Essay Contest judge**.
- 2019 **Data collection committee**, *AWM/MAA project “Notable Women in Mathematics”*.
- 2019 - **Mentor for “Mentoring Her”**, (*community for mentoring and empowering women*).
- 2018 **2018 Lathisms Calendar**, *I was featured on October 6th*, the calendar showcases the contributions of Latinxs and Hispanics in Mathematical Sciences, <http://lathisms.org/documents/Mariana-Smit-Vega-Garcia.pdf>.
- 2018 **Talk given at the Summer Institute for Mathematics at the University of Washington (SIMUW)**, (*a Summer camp for high school students*), The fascinating world of metric spaces.

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2017 **Talk given at the Summer Institute for Mathematics at the University of Washington (SIMUW)**, (*a Summer camp for high school students*), An exploration of change over time: the world of differential equations.

2012 **Article at the AWM Newsletter**, *N. Hernandez Ceron, L. Mrad, M. Smit Vega Garcia & Katia Vogt Geisse*, Student Chapter Column, Volume 42, Number 5, September-October 2012.

Other

2021 **Undergraduate Poster Session judge**, *Mathematical Association of America (MAA)*, Joint Mathematics Meetings.

Editorial work

Editorial Board, *Analysis and Mathematical Physics*.

Acting Editor, *Topical Collection for the journal SN Partial Differential Equations and Applications*.

Reviewer for

Notices of the AMS.

Mathematische Annalen.

Advances in Nonlinear Analysis.

Analysis and Mathematical Physics.

Communications in Mathematical Physics.

Swiss National Science Foundation.

International Mathematics Research Notices.

Inventiones Mathematicae.

Nonlinear Analysis.

Journal of Functional Analysis.

Journal of Differential Equations.

Discrete and Continuous Dynamical Systems.

Calculus of Variations and Partial Differential Equations.

Duke Math Journal.

Mathematika.

Mathematics in Engineering.

Advances in Mathematics.

Analysis & PDE.

Journal of Mathematical Analysis and Applications.

Acta Mathematica Scientia.

De Gruyter Series in Nonlinear Analysis and Applications.

Matemática Contemporânea - ICMC Summer Meeting 2022.

Mathscinet.

Zentralblatt MATH.

Service for the University

2021-2023 **Academic Honesty Board**, WWU.

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- 2022 **Selection of applicants**, *Washington NASA Space Grant Consortium Summer 2022 Research Internship*, WWU.
- 2022 **Faculty advisor**, *WWU SACNAS Chapter event “REU + summer internship resume workshop”*.
- 2021 **Personnel Committee**, *Math representative for the ProLeave applications*.
- 2019-2021 **College of Science and Engineering Faculty Ambassador for the department of Mathematics**, *WWU*, providing support for marginalized students, staff, and faculty in connection to equity, inclusion and diversity.
- 2021- **Faculty advisor of the WWU Chapter of SACNAS**, WWU.
- 2021 **Panelist/Advisor**, *WWU SACNAS Chapter event “Research Experiences for STEM Undergrads info session + Workshop”*.
- 2021 **Selection of applicants**, *Washington NASA Space Grant Consortium Summer 2021 Research Internship*, WWU.
- 2020 **Office of Research and Sponsored Programs**, *Selection committee for a new staff member to work with the Office of Research and Sponsored Programs*, WWU.
- 2020 **Selection of applicants**, *Washington NASA Space Grant Consortium Summer 2020 Research Internship*, WWU.
- 2020 **Faculty advisor**, *WWU SACNAS Chapter event “Internship Application Workshop”*.
- 2019 **Panelist**, *WWU SACNAS Chapter event “Info Session: STEM Internships and Research”*.
- 2019 **Panelist**, *WWU SACNAS Chapter event “STEM into Grad School”*.
- 2019 **Faculty advisor**, *WWU SACNAS Chapter event “REU in STEM workshop”*.

Service for the Department

- 2022- **Chair of the Curriculum Committee**, WWU.
- 2022 **MATH 331 Curriculum development**, *Summer curriculum development work funded by remaining Advancing Equity and Excellence in Science (AEES)*, WWU.
- 2021 **Field of Dreams Conference Grad School Fair**, *ran WWU Math department’s booth, with David Hartenstein*.
- 2021 **WAM graduate school information session**, *Panelist*, WWU.
- 2021 **Co-writer of the Winter Math qualifying exam**, WWU.
- 2021 **Selection Committee**, *Math Fellows*, WWU.
- 2021 **Group to design a flyer with “department norms”**, WWU.
- 2020 **Selection Committee**, *undergraduate Math scholarships*, WWU.
- 2020 **Selection Committee**, *Math Fellows*, WWU.
- 2020 **Selection Committee**, *Bond and Greene awards for graduate students*, WWU.
- 2020 **Development of an undergraduate research program proposal**, *jointly with Dr. K. Noguchi and students A. Uribe, P. Carroll and A. Kuhn*, WWU.
- 2019-2020 **Subcommittee to rethink graduate admissions**, WWU.
- 2019 **Elected students to receive an AWM Free Student Membership**, WWU.
- 2019 **Sub-committee to rethink the choice of textbook for MATH 331**, *Mathematics Department*, Western Washington University.
- 2020- **Undergraduate Committee**, WWU.

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19/23

- 2018- Graduate Committee, WWU.
- 2018- Curriculum Committee, WWU.
- 2018 Co-writer of a new Vision and Mission Statement, WWU.
- 2016 - 2018 Co-creator/co-organizer of a mentoring program for grad students, UW.
- 2013 Blackboard facilitator, Purdue University.
- 2013 Co-organizer of the Recruitment Weekend, Purdue University.
- 2012 - 2013 Graduate Student representative, Purdue University.
- 2012 Co-creator/co-organizer of a mentoring program for new grad students, the AWMentor, Purdue University.
- 2011 Screener of new TAs/session leader in the Orientation week for new TAs, Purdue University.
- 2011 - 2012 Vice president/founding member of the Purdue Chapter of the Association for women in Mathematics, Purdue University.

Seminars organized

- 2017 - 2018 Co-organizer of the Rainwater Seminar, Dept of Math, UW.
- 2013 Co-organizer of the Graduate Research Day, Dept of Math, Purdue University.
- 2012 - 2013 Co-organizer of the Bridge to Research Seminar, Dept of Math, Purdue University.
- 2011 - 2013 Co-organizer of the Student Colloquium, Dept of Math, Purdue University.
- 2012 - 2013 Co-organizer of the Basic Notions Seminar, Dept of Math, Purdue University.

Professional development

- 2022 The Inclusive STEM Teaching Project, edX, NSF project, 6 week course.
- 2020 Online Equal Opportunity & Affirmative Action Training - Resources for Search Committees, Western Washington University.
- 2020 Engaging Students in Online Environments, Western Washington University.
- 2020 Blended/Online Course Revision and Redesign, Western Washington University.
- 2020 Canvas Advanced Applications, Western Washington University.
- 2020 Zoom Advanced Applications (for faculty), Western Washington University.
- 2020 Principles of Online Teaching and Learning 1, Western Washington University.
- 2019 Diversity & Inclusion in the Modern Workplace, Western Washington University.
- 2019 Managing Bias, Western Washington University.
- 2018 Sexual Harassment Prevention, Western Washington University.
- 2018 QPR Suicide Prevention Gatekeeper program.
- 2009 Teaching workshop: Being a Teaching Assistant - Duties, responsibilities, etc, Department of Mathematics, Purdue University.
- 2009 Teaching workshop: Involving students during class, Department of Mathematics, Purdue University.
- 2009 Teaching workshop: Evaluating your students, grading, writing quizzes, etc, Department of Mathematics, Purdue University.

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- 2009 **Teaching workshop: Deal well with problems**, *Department of Mathematics*, Purdue University.
- 2009 **Teaching workshop: Getting ready to teach Algebra on your own**, *Department of Mathematics*, Purdue University.
- 2009 **Teaching workshop: Writing and grading quizzes**, *Department of Mathematics*, Purdue University.
- 2009 **Teaching workshop: Conducting recitation**, *Department of Mathematics*, Purdue University.
- 2009 **Teaching Assistant Workshop**, Purdue University.

References

- Professor Tatiana Toro
Position: Professor of Mathematics at the University of Washington
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phone: +1 206-543-1173
- Professor Georg Weiss
Position: Professor of Mathematics at the University of Duisburg-Essen
e-mail: georg.weiss@uni-due.de
phone: +49 0201/183-7429
- Professor Arshak Petrosyan
Position: Professor of Mathematics at Purdue University
e-mail: arshak@math.purdue.edu
phone: +1 765 49-41932
- Professor David Collingwood (concerns teaching)
Position: Professor of Mathematics at the University of Washington
e-mail: colling@u.washington.edu
phone: +1 206-543-1905
- Dr. Rita Saerens (concerns teaching)
Position: Former Assistant to the Head, Purdue University
e-mail: saerens@purdue.edu

Memberships

Member of the Association for Women in Mathematics.
Member of the European Women in Mathematics.
Member of the American Mathematical Society.
Member of the Brazilian Mathematical Society.

Languages

English	fluent	
Portuguese	fluent	<i>native from Brazil</i>
French	intermediate level	
German	intermediate level	
Spanish	intermediate level	

Proficiency in English

Oct 2008 **TOEFL iBT**, Score: 117/120, Reading 30, Listening 30, Speaking 29, Writing 28.

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Others

- 2022 **Video**, of my talk “Almgren type monotonicity formulas”, given at the Extremal Problems in Harmonic Analysis, Convexity, and Bellman Functions workshop at ICERM, available at https://icerm.brown.edu/video_archive/?play=3006.
- 2022 **Video**, of my talk “Branch points for (almost)-minimizers of two-phase free boundary problems”, given at the PDE Seminar at the Universidad de Chile, available at https://www.youtube.com/watch?v=7F_1MwaAUWs.
- 2022 **Video**, of my talk “The free boundary for almost-minimizers of two-phase free boundary problems”, given at the B^1 : PDE from the South Advanced School, available at https://www.youtube.com/watch?v=WfW_-zLsE2E.
- 2021 **Article**, on Western Today about my NSF grant 2054282, available at <https://westerntoday.wvu.edu/news/nsf-awards-new-grant-to-maths-mariana-smit-vega-garcia>.
- 2021 **Video**, of my talk “O que conecta o derretimento do gelo, picanha e muros?”, given online at the Cibercoloquio Latinoamericano de Matemáticas, available at <https://www.youtube.com/watch?v=dtr9dT6SF2A&t=3346s>.
- 2021 **Video**, of my interview given online at the Math-life balance YouTube Channel at <https://www.youtube.com/watch?v=v-QQn-4fg0Y&t=42s>.
- 2021 **Video**, of my talk “Regularity of almost minimizers with free boundary”, given online at the Lisbon WADE, Portugal, available at <https://www.youtube.com/watch?v=QSkH9-D69k>.
- 2021 **Video**, of my talk “On a Bernoulli-type overdetermined free boundary problem”, given at the ICMC Summer Meeting on Differential Equations, at ICMC USP São Paulo, Brazil, available at http://summer.icmc.usp.br/summers/summer21/recordings/linear_equations/LE_02_03.mp4.
- 2020 **Video**, of my talk “Almost minimizers for obstacle problems”, given online at the Geometric Analysis Seminar, at CUNY, USA, available at https://www.dropbox.com/s/hbg0cv3j7hehw8w/Mariana_9_17_2020.mp4?dl=0.
- 2020 **Video**, of my talk “Regularity of almost minimizers with free boundary”, given online at the Rio de Janeiro Webinars on Analysis and PDE, Brazil, available at <https://www.youtube.com/watch?v=s9vRJ4FD-GY>.
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