

Mariel Sáez Trumper

Pontificia Universidad Católica de Chile

☎ +56-2-23544523
✉ mariel at mat.puc.cl
Facultad de Matemáticas
Avda. Vicuña Mackenna 4860.
Macul, Santiago, 6904441,
Chile.

Research Interests

Geometric Analysis, Differential Geometry, Partial Differential Equations.

Education

2000–2005 **Ph.D. in Mathematics**, *Stanford University*, California, USA.

Thesis title *On the relationship between the curve shortening flow and the parabolic Ginzburg-Landau.*

Adviser Rafe Mazzeo.

1994–2000 **Ingeniero Civil en Matemáticas (Professional degree)**, *Universidad de Chile*, Chile.

Undergraduate *Estudio del fenómeno de extinción para una clase de Problemas Parabólicos con Difusión Rápida*

Thesis title *(English title: A study of the extinction phenomenon for a class of parabolic problems with fast diffusion).*

Adviser Manuel del Pino.

1994–1998 **Licenciatura en Ciencias de la Ingeniería mención Matemáticas**, *Universidad de Chile*, Chile.

Honors and Awards

2019–2023 **Proyecto Fondecyt Regular 1190388 (Research Grant)**, *CONICYT*, Chile, (One year extension due to COVID19).

2019 **International Exchanges 2017**, *Royal Society*, UK.

2018–2019 **Leverhulme Visiting Professorship (awarded on 2107)**, *Leverhulme Trust*, UK.

2017 **Robert Bartnik Fellowship**, *Monash University*, Australia.

2015–2019 **Proyecto Fondecyt Regular 1150014 (Research Grant)**, *CONICYT*, Chile.

2012–2016 **Proyecto 7912010001 Programa de atracción e inserción de capital humano avanzado**, title: *"Fortalecimiento del área de geometría"*, Sponsoring researcher, *CONICYT*, Chile.

2011–2015 **Proyecto Fondecyt Regular 1110048 (Research Grant)**, *CONICYT*, Chile.

2010–2013 **Proyecto Anillo ACT-125, Center for Analysis of Partial Differential Equations (Research Grant)**, *Chile*.

2007–2010 **Proyecto Fondecyt 11070025 de Iniciación en Investigación (Research Grant)**, *CONICYT*, Chile.

2000 **Royden Fellowship**, *Stanford University*, USA.

1995–2000 **Outstanding Student Award**, *Facultad de Ciencias Físicas y Matemáticas*, *Universidad de Chile*, Chile.

1994 **Fellowship for Academic Excellence**, *Universidad de Chile*, Chile.

Experience

Winter–
semester
2013 **Visiting professor**, *Freie Universität*, Berlin, Germany.

2012–present **Associate Professor**, *Pontificia Universidad Católica de Chile*, Chile.

- 2009 **Juniorprofessorin der Besoldungsgruppe W1 für das Fachgebiet Analysis, Geometrie und Mathematische Physik**, *Freie Universität*, Berlin, Germany.
 (declined)
- 2008–2012 **Assistant Professor**, *Pontificia Universidad Católica de Chile*, Chile.
- 2005–2008 **Postdoctoral Fellow**, *Max Planck Institute for Gravitational Physics (Albert Einstein Institute)*, Germany.

Academic visits (selected)

Long term

- May–June 2024 **CRM-Simons Professor**, *Centre de Recherches Mathématiques*, at the CRM from May 1, 2024 Special thematic semester in geometric analysis, Montreal, Canada.
- September 2019 **Research Member**, *Mathematical Sciences Research Institute (MSRI)*, Program *Microlocal Analysis*, Berkeley, USA.
- June 2019 **Royal Society Visiting Professor**, *University College of London*, London, UK.
- January–February 2019 **Leverhulme Visiting Professor**, *University College of London*, London, UK.
- May–June 2018 **Leverhulme Visiting Professor**, *University College of London*, London, UK.
- March–April 2018 **Visiting Professor**, *Universidad Autonoma de Madrid*, Madrid, Spain.
- October–November 2017 **Visiting Professor**, *Monash University*, Australia.
- January–February 2016 **Research Member**, *Mathematical Sciences Research Institute (MSRI)*, Program *Differential Geometry*, Berkeley, USA.
- April–May, 2016 **Visiting professor at Berlin Mathematical School**, *Freie Universität*, Germany.
- Winter–semester 2013–2014 **Visiting professor at Berlin Mathematical School**, *Freie Universität*, Germany.
- August–November, 2008 **Research Member**, *Mathematical Sciences Research Institute (MSRI)*, Program *Analysis on Singular Spaces*, Berkeley, USA.
- April–July, 2008 **Visiting Ph.D student**, *Swiss Federal Institute of Technology (ETH)*, Zürich, Switzerland.

Short term

- March 2023 **Invitation by Tobias Lamm at KIT**, *Karlsruhe*, Germany.
- January 2023 **Invitation by Francisco Martin at Universidad de Granada**, *Granada*, Spain.
- July 2022 **Invitation by María del Mar González at Universidad Autónoma**, *Madrid*, Spain.
- June 2018 **Invitation by Peter Topping at University of Warwick**, *Warwick*, UK.
- May 2018 **Invitation by Neshan Wickramakera at University of Cambridge**, *Cambridge*, UK.
- September 2017 **Invitation by Panagiota Daskalopoulos at Columbia University**, *New York*, USA.
- May 2016 **Invitation by Panagiota Daskalopoulos at Columbia University**, *New York*, USA.
- December 2015 **Invitation by Martin Li at Chinese University of Hong Kong**, *Hong Kong*, Hong Kong.
- September 2015 **Invitation by Laurent Hauswirth at Université de Marne-la-Vallée**, *Paris*, France.

- September 2015 **Invitation by Enrico Valdinoci at Weierstrass institute, Berlin, Germany.**
- September 2015 **Invitation by María del Mar González at Universidad Politénica de Catalunya, Barcelona, Spain.**
- February 2015 **Invitation by Oliver Schnürer at Konstanz Universität, Konstanz, Germany.**
- January 2015 **Invitation by Alice Chang at Princeton Univesity, Princeton, USA.**
- July 2014 **Invitation by María del Mar González at Universitat Politénica de Catalunya, Barcelona, Spain.**
- March 2014 **Invitation by Laurent Hauswith at Université de Marne-la-Vallée, Paris, France.**
- April 2014 **Invitation by Felix Schulze at University College London, London, UK.**
- February 2014 **Invitation by Ben Andrews and Julie Clutterbuck at Australian National University, Canberra, Australia.**
- January 2014 **Invitation by Francisco Martin at Universidad de Granada, Granada, Spain.**
- February 2013 **Invitation by Enrico Valdinoci at Università degli Studi di Milano, Seminar Talk, Milan, Italy.**
- January 2013 **Invitation by María del Mar González at Universitat Politénica de Catalunya, Barcelona, Spain.**
- January 2013 **Invitation by Rafe Mazzeo at Stanford University, Stanford, USA.**
- September 2012 **Invitation by Valeria Banica at Université d'Evry Val d'Essonnen, Évry, France.**
- September 2012 **Invitation by María del Mar González at Universitat Politénica de Catalunya, Barcelona, Spain.**
- September 2012 **Invitation by Felix Schulze at Freie Universität, Berlin, Germany.**
- September 2012 **Invitation by Oliver Schnürer at Konstanz Universität, Konstanz, Germany.**
- September 2011 **Invitation by Barış Çoskünezer at Koç University, Istanbul, Turkey.**
- September 2011 **Invitation by Felix Schulze at Freie Universität, Berlin, Germany.**
- September 2011 **Invitation by Oliver Schürer at Konstanz Universität, Konstanz, Germany.**
- September 2011 **Invitation by María del Mar González at Universitat Politénica de Catalunya, Barcelona, Spain.**
- November 2011 **Invitation by Rafe Mazzeo at Stanford University, Stanford, USA.**
- October 2010 **Invitation by Oliver Schnürer at Konstanz Universität, Konstanz, Germany.**
- February 2010 **Invitation by Oliver Schnürer at Konstanz Universität, Konstanz, Germany.**
- October 2009 **Invitation by Rafe Mazzeo at Stanford University, Stanford, USA.**
- August 2009 **Invitation by Felix Schulze at Freie Universität, Berlin, Germany.**
- August 2009 **Invitation by Gerhard Huisken at Max Planck Institue for Gravitational physics (Geometric Analysis Group), Potsdam, Germany.**
- November 2008 **Invitation by Rafe Mazzeo at Stanford University, Stanford, USA.**
- July 2008 **Invitation by Didier Smets at Paris VII, Paris, France.**

- July 2008 **Invitation by Gerhard Huisken at Max Planck Institute for Gravitational physics (Geometric Analysis Group), Potsdam, Germany.**
- December 2007 **Invitation by Juan Jose Velazquez at Universidad Complutense de Madrid, Madrid, Spain.**
- May 2006 **Invitation by Juan Jose Velazquez at Max Planck Institute for Mathematics in the Sciences, Leipzig, Germany.**
- February 2006 **Invitation by Julio Rossi at Consejo Superior de Investigaciones Científicas(CSIC), Madrid, Spain.**

Selected Academic Talks (seminars and conferences)

- January 2025 **Calculus of Variations and PDE's in Geometric Analysis, Rome, Italy.**
- January 2025 **Seminario Universidad de Granada, Granada, España.**
- December 2024 **Encuentro Somachi (sesión Análisis Geométrico) , , Valdivia, Chile.**
- December 2024 **Workshop on Conformal and CR Geometry , Banff, Canada.**
- October 2024 **Recent progress on geometric analysis and Riemannian geometry, , Berkeley, USA.**
- August 2024 **Bridging Borders International Geometric Analysis in Sao Paulo , , Sao Paulo, Brazil.**
- July 2024 **XXI School of Differential Geometry , , Diamantina, Brazil.**
- May 2024 **Analysis of Geometric Singularities , (organizer), Montreal, Canada.**
- January 2023 **Workshop on Differential Geometry, Granada, Spain.**
- July 2022 **Workshop Mean Curvature Flow and Related Topics, London, UK.**
- July 2021 **8th Mathematical Congress of the Americas, Buenos Aires, Argentina, (virtual).**
- August 2020 **Pacific Rim Conference (session Recent Trends in Geometric Analysis), Berkeley, USA, (virtual).**
- May 2019 **Women In Geometry 2, Oaxaca, Mexico.**
- May 2018 **GAPDE seminar at University of Cambridge, Cambridge, UK.**
- April 2018 **PDE Seminar at Universidad Autonomas, Madrid, Spain.**
- January 2018 **2nd Italian-Chilean Workshop in PDE's, Rome, Italy.**
- October 2017 **"Elliptic Partial Differential Equations of Second Order: Celebrating 40 Years of Gilbarg and Trudinger's Book", Matrix, Creswick, Australia.**
- August 2016 **Seminario CAPDE, Santiago, Chile.**
- July 2016 **V Congreso Latino Americano de Matematicas (CLAM), session *Avances en Ecuaciones Diferenciales Parciales no lineales-Ecuaciones Diferenciales Parciales elipticas*, Barranquilla, Colombia.**
- July 2016 **School of Differential Geometry, Instituto de Matematica Pura e Aplicada (IMPA), Minicourse, Rio de Janeiro, Brazil.**
- May 2016 **Columbia University, Seminar talk, New York, USA.**
- April 2016 **University of California at Santa Cruz, Seminar talk, Santa Cruz, USA.**
- Febrero 2016 **Mathematical Research Science Institute (MSRI), Seminar talk, Berkeley, USA.**
- December 2015 **Chinese University of Hong Kong, Seminar talk, Hong Kong.**
- December 2015 **3rd Chile-Japan Workshop, Osaka, Japon.**
- November 2015 **LXXXIV encuentro Somachi, Conference talk, Pucon, Chile.**

- September 2015 **Universidad Politècnica de Catalunya**, *Seminar talk*, Barcelona, Spain.
- July 2015 **Coloquio Brasileiro**, *Instituto de Matematica Pura e Aplicada (IMPA)*, Rio de Janeiro, Brazil.
- February 2015 **Nonlinear elliptic PDEs at the End of the World**, *Punta Arenas*, Chile.
- February 2015 **Konstanz Universität**, *Seminar talk*, Konstanz, Germany.
- January 2015 **Princeton University**, *Seminar talk*, Princeton, USA.
- October 2014 **Semana de la Matemática 2014 at PUCV**, *Valparaiso*, Chile.
- April 2014 **Jornadas de Matemáticas de la Zona Sur**, *Temuco*, Chile.
- April 2014 **University College London**, *Seminar talk*, London, UK.
- February 2014 **Conference Geometric Invariance and nonlinear PDE**, *Kioloa*, Australia.
- January 2014 **Universidad de Granada**, *Seminar talk*, Granada, Spain.
- August 2013 **I Conference of the Americas**, *Guanajuato*, Mexico.
- February 2013 **Università deli Studi di Milano**, *Seminar Talk*, Milan, Italy.
- January 2013 **Universitat Politècnica de Catalunya**, *Seminar talk*, Barcelona, Spain.
- November 2012 **LXXXI Encuentro Somachi**, *Olmué*, Chile.
- August 2012 **IV CLAM conference**, *Cordoba*, Argentina.
- July 2012 **9th AIMS Conference on Dynamical Systems, Differential Equations and Applications**, *Orlando*, USA.
- January 2012 **IX Americas Conference on Differential Equations**, *Trujillo*, Perú.
- September 2011 **Universitat Politècnica de Catalunya**, *Seminar talk*, Barcelona, Spain.
- September 2011 **Conference on Geometric Evolution Equations**, *University of Konstanz*, Germany.
- January 2011 **Analyse géométrique (in honor of Rafe Mazzeo)**, *Centre International de Rencontres Mathématiques (CIRM)*, Luminy, France.
- January 2011 **Connections for Women: Free Boundary Problems, Theory and Applications**, *Berkeley*, USA.
- December 2010 **First Sino-Chilean conference Conference on Nonlinear Elliptic and Parabolic Equations**, *Wuhan*, China.
- September 2010 **Konstanz Universität**, *Seminar talk*, Konstanz, Germany.
- September 2010 **Workshop Extrinsic Geometric Flows**, *Universidad de Valencia*, Spain.
- December 2009 **Chile-Japan workshop**, *Tokyo*, Japan.
- October 2009 **Stanford University**, *Seminar talk*, Stanford, USA.
- October 2009 **VIII Americas Conference on Differential Equations**, *Plenary talk*, Mexico.
- May 2009 **Universidad de Concepción**, *Colloquium*, Concepción, Chile.
- May 2009 **Universidad de Talca**, *Colloquium*, Talca, Chile.
- February 2009 **Freie Universität**, *Oberseminar (Geometric Analysis Group)*, Berlin, Germany.
- January 2009 **First winter school at IMDEA on PDEs and inequalities**, *Madrid*, Spain.

- January 2009 **Max Planck Institute for Gravitational Physics (AEI)**, *Geometric Analysis Seminar*, Potsdam, Germany.
- May 2008 **Symposia on Analysis of Geometric evolution (SAGE)**, *Austin, Texas, USA*.
- April 2008 **Seminario EDP Santiago**, *Seminar talk*, Santiago, Chile.
- June 2008 **Universidad Federico Santa María**, *Seminar talk*, Valparaiso, Chile.
- February 2008 **Universität Freiburg**, *Seminar talk*, Freiburg, Germany.
- December 2007 **Universidad Complutense de Madrid**, *Madrid*, Spain.
- January 2007 **Workshop**, *Universidad Católica de Chile*, Santiago, Chile.
- February 2006 **Oberseminar**, *Freie Universität*, Berlin, Germany.
- July 2006 **Workshop Calculus of Variations**, *Mathematisches Forschungsinstitut Oberwolfach*, Germany.
- May 2006 **Max Planck Institute for Mathematics in the Sciences**, *Seminar talk*, Leipzig, Germany.
- March 2006 **Max Planck Institute for Gravitational Physics (Albert Einstein Institute)**, *Seminar talk*, Potsdam, Germany.
- February 2006 **Universidad Autónoma de Madrid**, *Seminar talk*, Madrid, Spain.
- January 2000 **Workshop on Nonlinear Analysis**, *Valparaiso*, Chile.

Teaching

Selected teaching at Pontificia Universidad Católica

- MAT1630 **Cálculo 3**, *First Semester 2022*.
- MAT1000 **Precalculo**, *First Semester 2021*.
- MAT1206 **Introducción al álgebra**, *First Semester 2020*.
- MAT2305 **Geometría Diferencial**, *First Semester 2019*.
- MAT2705 **Variable Compleja**, *First Semester 2018*.
- MAT1126 **Cálculo II**, *First semester 2017*.
- MPG3970 **Geometría Diferencial**, *Second semester 2016*.
- MAT1206 **Introducción al Álgebra**, *First Semester 2015*.
- IMT0100 **Introducción a la ingeniería matemática**, *First Semester 2015*.
- MAT2515 **Análisis Real**, *Second Semester 2014*.
- MAT1206 **Introducción al Álgebra**, *First Semester 2013*.
- MAT1600 **Introducción al Cálculo**, *First Semester 2013*.
- MPG3950 **Variable Compleja (graduate level)**, *First Semester 2012*.
- MAT1630 **Cálculo III**, *First Semester 2012*.
- MAT110E **Álgebra**, *First Semester 2011*.
- MPG 3100 **Análisis Real (graduate level)**, *First Semester 2011*.
- MAT1203 **Álgebra lineal**, *First Semester 2011*.
- MAT1620 **Cálculo II**, *First Semester 2010*.
- MPG31030 **Ecuaciones en derivadas parciales (graduate level)**, *First Semester 2009*.
- MAT1600 **Introducción al cálculo**, *First Semester 2008*.

Other Teaching and Mentoring experience

Workshop "Nonlocal and Local Coupled Equations", *Minicourse on "Nonlocal operators in geometry and nonlocal geometry"*, February 2023, Montevideo, Uruguay

TYAN Workshop in Mathematics 2022, *Minicourse on “Eigenvalues of operators in conformal geometry”*, November 2022, Sao Paulo.

Brazil

AMSI Winter School 2018, *Minicourse on the “Network Flow”*, July 2018, University of Queensland, Australia.

LSGNT mini course on the Allen-Cahn equation and its connections with geometry, *June 2018*, University College of London, London, UK.

School of Differential Geometry, *Minicourse “Geometric flows”*, July 2016, IMPA.

Brazil

Berlin Mathematical School (BMS), *Partial Differential Equations II*, Wintersemester 2013, Berlin, Germany.

Stanford University Math Camp (SUMaC), *Counselor 2001, 2003, 2004*, California, USA.

Stanford University, *Teaching assistant for several courses*, 2000-2005, California, USA.

Universidad de Chile, *Teaching assistant for several courses*, 1996-2000, Chile.

Administrative Duties

2023–2027 **Representative of Latinamerica at the committee for developing countries**, *International Mathematical Union*.

2022-present **Director of outreach activities**, *Facultad de Matemáticas, UC*.

2016-2019 **Member of the study group for Fondecyt grant**.

2018-2022 **Mathematics Graduate program director**.

2014–2016 **Coordinator of the mathematics section at “Programa de formación de capital humano”**, *Conicyt, Chile*.

2014-2017 **Director of the department of Mathematics at P. Universidad Católica de Chile**.

Languages

Spanish Native

English Fluent

German Intermediate

French, Basic

Turkish

Other Information

Citizenship **Chilean**.

2007–2015 **Reviewer for the AMS**.

Refereeing **Several journals including Calculus of variations, Journal für die Reine und Angewandte Mathematik (Crelle’s Journal), Communications in Partial Differential , Communications in Analysis and Geometry, Discrete and Continuous Dynamical System - A, Journal of Geometric Analysis.**

Graduate **Karen Corrales (Ph.d 2015), José Gabriel Torres (Master 2015), Sebastián Muñoz Students (Master 2021), Cristián Figueroa (Master 2023), José Gabriel Torres (Ph.D 2023), Agustín Oyarce (Master 2024), María Fernanda Espinal (Ph.D 2024) .**

Undergraduate **José Gabriel Torres (2012), Eduardo Oregon (2015), Renato Velozo (2015), Sebastián projects Pavez (2016), Sebastián Muñoz (2018).**

December **Member of Ph.D. thesis Committee, Jesús Pérez, Universidad de Granada, Granada, Spain.**
2016

December **Member of Ph.D. thesis Committee, Azahara de la Torre, Universidad Politecnica de**
2016 **Catalunya, Barcelona, Spain.**

Organized .
conferences

PRIMA (Geometric Analysis Session), *December 2022*, Vancouver, Canada.

Early Career Workshop On Analysis and PDE, *January 2020*, Creswick, Australia.

II Encuentro de Mujeres Matemáticas de América Latina, *January 2018*.

CIMPA-ICTP Minimal Surfaces, overdetermined problems and geometric analysis, *April 2015*.

LXXXII Encuentro Anual Sociedad Matemática de Chile (Organizer of the PDE session), *November 2013*.

Second Sino-Chilean conference Conference on Nonlinear Elliptic and Parabolic Equations, *July 2012*.

LXXX Encuentro Anual Sociedad Matemática de Chile (Organizer of the PDE session), *November 2011*.