

CURRICULUM VITAE

Sabrina D. Roscani

CONICET (Consejo Nacional de Investigaciones Científicas y Técnicas)
Dto. de Matemática, FCE, Universidad Austral de Rosario (UA), Paraguay 1950,
Rosario (2000), Argentina.
sroscani@austral.edu.ar / sabrinaroscani@gmail.com

1 Current Activity and Education

- July 2022 up to present: **Adjoint researcher** CONICET, at UA.
- April 2014 up to now: Adjoint professor at Dto. de Matemática, Escuela de Ciencias Exactas y Naturales, Universidad Nacional de Rosario (UNR), Argentina.
- December 2018 - June 2022: **Assistant researcher** CONICET, at UA.
- April 2016- December 2018: **Posdoctoral** at Universidad Austral with a fellowship from CONICET.
- November 2015: **Ph.D. in Mathematics**, at Universidad Nacional de Rosario (UNR), Argentina, with a scholarship from CONICET. Advisors: Eduardo A. Santillan Marcus and Domingo A. Tarzia.
- March 2011: **Degree in Mathematics**, at the Universidad Nacional de Rosario (UNR), 2006 - 2011.
- March 2006: **Mathematics Teaching Degree**, at Universidad Nacional de Rosario (UNR), Argentina.

2 Research interests

I am interested in Fractional Calculus and partial differential equations, with my research primarily focusing on fractional diffusion equations. In particular, I am especially interested in fractional free boundary problems.

Additionally, I work in the field of solid mechanics, specifically on elasticity problems within shell theory.

3 Publications in the Last 5 Years

- S. Roscani, K. Ryszewska, and L. Venturato. “*On a Space Fractional Stefan problem of Dirichlet type with Caputo flux*”. *Mathematische Nachrichten*. Preprint.
- M.T. Cao-Rial, S. Roscani, L. Venturato, “*Asymptotic analysis of linearly elastic shells in normal compliance contact: Error estimates for the elliptic membrane case*”. *Mathematics and Mechanics of Solids* (2026), pp. 1-22.
- D. Guevara, S. Roscani, L. Venturato and D. Tarzia. “*A one-phase Fractional Spatial Stefan Problem with Convective specification at the fix boundary*”. *Axioms*, 14 No. 757 (2025), 1-24.
- N. Caruso, S. Roscani, L. Venturato, V. Voller. “*On Computation of Prefactor of Free Boundary in One Dimensional One-Phase Fractional Stefan Problems*”, *Fractal and Fractional* 9(7):379 (2025).

- A.D. Arós-Rodríguez, C. Fernandes, S. Roscani, “*Asymptotic Analysis of Elastic Elliptic Membrane Shells in Frictional Contact: Exploring Wear Phenomena*. Preprint. *Asymptotic Analysis* 142(1):291–320 (2025).
- D. Hilhorst, S. Roscani, P. Rybka, “*Convergence of solutions of a one-phase Stefan problem with Neumann boundary data to a self-similar profile*”, *Nonlinear Differential Equations and Applications* 31, 56 (2024).
- S. Roscani, V. Voller. “*On an enthalpy formulation for a sharp-interface memory-flux Stefan problem*”, *Chaos, Solitons and Fractals*, 181:114679 (2024).
- V. Voller, S. Roscani “*A general non-Fourier Stefan problem formulation that accounts for memory effects*”, *International Journal of Heat and Mass Transfer*, 209:124094 (2023).
- S. Roscani, L. Venturato “*About Convergence and Order of Convergence of some Fractional Derivatives*”, *Progress in Fractional Differentiation and Applications* 8(4): 495–508 (2022).
- S. Roscani, K. Ryszewska and L. Venturato “*A one-phase space-fractional Stefan problem with no liquid initial domain*”. *SIAM Journal on Mathematical Analysis* 54(5):5489–5523 (2022).
- I. Cardos, S. Roscani and D. Tarzia, “*About the convergence of a family of initial boundary value problems for a fractional diffusion equation of Robin type*”, *Applied Mathematics and Computation* 433: 127375 (2022).
- S. Roscani, D. Tarzia, and L. Venturato. “*The similarity method and explicit solutions for the fractional space one-phase Stefan problems*”. *Fractional Calculus and Applied Analysis* 25:995–1021 (2022).
- M.T. Cao-Rial, G. Castiñeira, Á. Rodríguez-Arós, S. Roscani, “*Mathematical and asymptotic analysis of thermoelastic shells in normal damped response contact*”, *Communications in Nonlinear Science and Numerical Simulation* 103:105995 (2021).
- M.T. Cao-Rial, G. Castiñeira, Á. Rodríguez-Arós, S. Roscani, “*Asymptotic Analysis of Elliptic Membrane Shells in Thermoelastodynamics*”, *Journal of Elasticity*, 143:385–409 (2021).

4 Research Grants in the last 5 years

- Proyectos Austral N°006-25CI2001, “*Estudio de problemas gobernados por ecuaciones diferenciales parciales no lineales en procesos de difusión anómala y en deformación de láminas*”, (2025-2026). Under my coordination.
- CONICET PIP N° 11220220100532, “*Estudio de problemas modelizados por ecuaciones diferenciales parciales no clásicas. Teoría y aplicaciones*, ” (2024-2027). Co-director.
- PICT-2021-I-INVI-00317, “*Time or Space Fractional Stefan Problems. Theory and applications*”, (2023-2025). Under my coordination.
- Proyecto Austral 006–INV00030, “*Problemas asociados a ecuaciones de difusión fraccionaria con derivadas temporales y/o espaciales de Caputo y Riemann-Liouville. Teoría y aplicaciones*”, (2023/2024). Under my coordination.
- Proyecto Austral 006–INV00020, “*Problemas asociados a ecuaciones de difusión fraccionarias*”, (2021/2022). Under my coordination.
- CONMECH - European Union’s Horizon 2020 n° 823731, “*Nonsmooth Contact Dynamics*”, (2019-2024). Integrant.

5 Selected conference presentations by invitation

- **2024:** ISAAC-ICMAM Conference of Analysis in Developing Countries 2024.
- **2024:** 3rd Emerging Trends in Applied Mathematics and Mechanics (ETAMM 2024), A Coruña, España.
- **2023:** 10th International Congress on Industrial and Applied Mathematics, virtual, Waseda University, Tokyo, Japan (minisymposium participation)
- **2023:** Seminario Fontán de Matemáticas, evento CONMECH en el Centro de Investigación y Tecnología Matemática de la Galicia.
- **2021:** Reunión Anual de la Unión Matemática Argentina virtUMA2021 (minicourse).
- **2021:** Mathematical Congress of the Americas, Buenos Aires, online, (minisymposium participation)
- **2020:** Nonlocal diffusion problems, nonlocal interface evolution (Online), Institute of Mathematics, Polish Academic of Science.
- **2019:** Jornadas de Analistas Jóvenes de Argentina (JAJA2019), Santa Fe, Argentina (conference).

6 Supervision and training of students/researchers

6.1 Bachelor's thesis supervision

- D. Guevara, “ Un problema fraccionario unidimensional de Stefan con condición de tipo convectiva”, Tesina de Licenciatura en Matemática, FCEIA-UNR, Rosario, Febrero de 2025.
- L. Venturato, “Derivada fraccionaria de Caputo–Fabrizio”, Trabajo Final de la Licenciatura en Matemática, FCEIA (UNR), Rosario, 18 de Marzo de 2019.

6.2 PhD thesis supervision

- L. Venturato, “Estudio de soluciones a problemas de tipo Stefan asociados a procesos de difusión anómala y aleaciones binarias ”, Tesis doctoral, Doctorado en Matemática, UNR, Rosario, 14 de Diciembre de 2023.