

# Álvaro Samperio

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## EMPLOYMENT

Profesor doctor at CUNEF Universidad since September 2025.

Postdoctoral researcher at Universitat Politècnica de Catalunya in 2025.

Researcher in Mathematics at CARTIF Foundation from 2019 to 2025.

Contractual PhD student at the University of Valladolid from 2020 to 2024.

## EDUCATION

PhD in Mathematics at the University of Valladolid from October 2020 to January 2025.

Master's degree in Mathematical Research at the University of Valladolid from 2019 to 2020.

Bachelor's degree in Mathematics and Bachelor's degree in Physics (double degree) at the University of Valladolid from 2014 to 2019.

## FIELDS OF INTEREST

Graph theory, stability of inverse problems, applications of real algebraic geometry.

## PUBLICATIONS

Samperio, Á.: "Simultaneous recovery of a sparse topology and the admittance of an electrical network", in *Mathematical Modelling in Engineering & Human Behaviour 2024*. *Springer Proceedings in Mathematics & Statistics series*, Springer, accepted for publication in 2025.

Carmona, Á., Encinas, A. M., Jiménez, M. J., Samperio, Á.: “Stable recovery of piecewise constant conductance on spider networks”, *International Journal of Computer Mathematics*, 101(11), 1237–1254, 2024.

Peñaloza, D., Mata, É., Fransson, N., Fridén, H., Samperio, Á., Quijano, A., Cuneo, A.: “Social and market acceptance of photovoltaic panels and heat pumps in Europe: A literature review and survey”, *Renewable and Sustainable Energy Reviews*, 155, 111867, 2022.

## WORKING PAPERS

González-Sanz, A., Mordant, G., Samperio, Á., Sen, B. : “Estimation of Algebraic Sets: Extending PCA Beyond Linearity”, submitted, 2025.

Abiad, A., Carmona, Á., Encinas, A. M., Jiménez, M. J., Samperio, Á.: “Approximating Kemeny’s constant of dense networks via spectral sparsification”, submitted, 2025.

Carmona, Á., Encinas, A.M., Jiménez, M.J., Samperio, Á. : “Stable and optimal conductance recovery on networks”, submitted, 2024.

## SELECTED ACADEMIC HONOURS AND GRANTS

“Premio extraordinario de fin de Máster” (Prize awarded to the most outstanding graduate in the Master program in Mathematics).

## SELECTED PRESENTATIONS

### CONFERENCES

“Statistical guarantees in the sparse recovery of an electrical network”, in XXVI edition of the international congress Mathematical Modelling in Engineering & Human Behaviour (MME& HB2024) (2024); “Sparse recovery of an electrical network” in Congreso de Ecuaciones Diferenciales Y Aplicaciones / Congreso de Matemática Aplicada 2024 (2024); “Stability in the recovery of conductances in spider networks under a piecewise constant conductance hypothesis” in 8<sup>o</sup> Encuentro ALAMA: Álgebra Lineal, Análisis Matricial y Aplicaciones (2024); “Recovering piecewise constant conductances on networks with boundary” in 25th Conference of the International Linear Algebra Society (2023); “Recovering piecewise constant conductances on networks” in VI Jornadas ALAMA 2023: Laplacian and M-matrices on Graphs (2023).

### SEMINARS

One seminar at the University of Valladolid (2025); one seminar at CUNEF Universidad (2025); two seminars at Eindhoven University of Technology (2023).