

CURRICULUM VITAE

IGNACIO SANTAMARIA

1. Current affiliation

Family name: Santamaría

Name: Ignacio

School: Escuela Técnica Superior de Ingenieros Industriales y de Telecomunicación

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2. Education

- MsC. Degree Telecommunications Engineer, Polytechnic University of Madrid (UPM), 1991.
- Ph. D. Telecommunications Engineer, Polytechnic University of Madrid (UPM), 1995. Advisor: Prof. Antonio Artés Rodríguez.

3. Areas of Teaching experience

Digital Signal Processing, Machine Learning Techniques, MIMO Wireless Communications, Statistical Signal Processing, Adaptive Signal Processing, Information Theory, Kernel Methods

4. Research lines

- Signal processing for wireless communications systems: single-user and multi-user MIMO (multiple-input multiple-output) systems.
- Reconfigurable Intelligent Surfaces.
- Interference management techniques, interference alignment, noncoherent communications (based on Grassmannian signaling), improper signaling, NOMA, and cognitive radio networks.
- Detection, multistatic passive radar, multiantenna detection.
- Convex and non-convex optimization techniques and their application to resource allocation and wireless communications problems.
- Manifold optimization techniques. Optimal packings on manifolds.
- Machine learning, kernel methods, kernel adaptive filtering.

- Information theory and multivariate statistical analysis techniques (in particular CCA).
- Implementation of MIMO platforms and testbeds: over-the-air experimental evaluation of MIMO communication systems.

5. Main Funded Research Projects

- **Seamless Integration of Efficient 6G Wireless Technologies for Communication and Sensing (6G-SENSES) (Grant Agreement 101139282)**. Funded by European Commission's Horizon Europe, Smart Networks and Services Joint Undertaking program under grant agreement 101139282. Jan. 2024 - Dec. 2026. Principal Investigator (PI): Ignacio Santamaría. Budget: 100.000 €.
- **Enabling Communication, Coding and Processing Technologies for Next-Generation Classical-Quantum Networks (MADDIE) (PID2022-137099NBC43)**. Funded by: Spanish Government, Ministerio Ciencia, Innovación e Universidades, AEI, y FEDER, UE. Sept. 2023 - Sept. 2026. Principal Investigator (PI): Ignacio Santamaría. Budget: 60.125 €.
- **Noncoherent Communications on the Grassmann Manifold (GRASSCOM)**. Funded by: Huawei Technologies Sweden AB. June 2021-May 2023. Principal Investigator (PI): Ignacio Santamaría. Budget: 250.470 €.
- **Advances in Coding and Signal Processing for the Digital Society (ADELE) (PID2019-104958RB-C43)**. Funded by: Spanish Government, Ministerio Ciencia e Innovación. June 2020-May 2023. Principal Investigator (PI): Ignacio Santamaría. Budget: 68.970 €.
- **Coding and Signal Processing for Emerging Wireless Communication and Sensor Networks (CARMEN) (TEC2016-75067-C4-4-R)**. Funded by: Spanish Government, MINECO. January 2017-December 2019. Principal Investigator (PI): Ignacio Santamaría. Budget: 92.565 €.
- **Radio Access Techniques for Wireless Heterogeneous Networks (TEC2013-47141-C3-R)**. Funded by: Spanish Government, MINECO. January 2014-December 2016. Principal Investigator (PI): Ignacio Santamaría. Budget: 163.955 €.
- **MIMO Communications for Critical Missions**. Funded by: BERTEN DSP S. L. January 2018- December 2018. Principal Investigator (PI): Jesús Ibáñez. Budget: 10.000 €.
- **Nonlinear Predictors for Electric Power Load and Gas Load Forecasting (PRE-DILECT)**. Funded by: 3D-Intelligence. July 2017- March 2018. Principal Investigator (PI): Ignacio Santamaría. Budget: 25.430 €.
- **Automatic System for Detecting and Classifying Defects in Steam Generators**. Funded by: TECNATOM. October 2014- December 2016. Principal Investigator (PI): Ignacio Santamaría. Budget: 123.420 €.
- **COMONSENS Network of Excellence (TEC2015-69648-REDC)**. Funded by: Spanish Government, MINECO. December 2015-November 2017. Principal Investigator (PI): Javier Rodríguez Fonollosa. Budget: 51.500 €.
- **Advanced Machine Learning Techniques for Patterns Recognition in Time Series (TEC2014-57402-JIN)**. Funded by: Spanish Government, MINECO. October 2015-October 2017. Principal Investigator (PI): Steven Van Vaerenbergh. Budget: 99.090 €.

- **Cooperative and cognitive strategies for interference management in wireless communication networks (TEC2010-19545-C04-03).** Funded by: Spanish Government, MICINN. January 2011-December 2013. Principal Investigator (PI): Ignacio Santamaría. Budget: 122.815 €.
- **Foundations and Methodologies for Future Communication and Sensor Networks (CSD2008-00010).** Funded by: Spanish Government, MICINN, Subprograma CONSOLIDER-INGENIO, January 2008-December 2013. Principal Investigator of UC team: Ignacio Santamaría. Budget: 314.912 €. Project Coordinator: Javier Rodríguez-Fonollosa (UPC)
- **Advanced MIMO systems for maximum reliability and performance (MIMAX) (FP7-ICT-213952).** Funded by: European Commission, Seventh Research Framework Program (FP7). January 2008-December 2010. Principal Investigator (PI): Ignacio Santamaría. Budget: 458.264 €.
- **MIMO technologies for multiterminal wireless networks (TEC2007-68020-C04-02).** Funded by: Spanish Government, Ministry of Education and Science (MEC). October 2007-September 2010. Principal Investigator (PI): Ignacio Santamaría. Budget: 166.133 €.
- **Estudio, diseño de protocolos y dimensionamiento de red para topologías de red multisalto.** Funded by: SAYME S. L., November 2009-September 2010. Principal Investigator (PI): Jesús Ibáñez. Budget: 45.240 €.
- **Estudio para el diseño y dimensionamiento de la estructura de clusters de servidores.** Funded by: SAYME S. L., December 2009-September 2010. Principal Investigator (PI): Jesús Ibáñez. Budget: 51.040 €.
- **Desarrollo de la algorítmica de una unidad IMU de bajo coste (KALIMU).** Funded by: TTI Norte, February 2010-April 2011. Principal Investigator (PI): Jesús Ibáñez. Budget: 15.660 €.
- **Development and hardware demonstration of new transmission techniques for MIMO systems (TEC2004-06451-C05-02/TCM).** Funded by: Spanish Government, Ministry of Education and Science (MEC). December 2004-December 2007. Principal Investigator (PI): Jesús Pérez-Arriaga. Budget: 116.840 €.
- **Advanced system for information delivery and entertainment of train passengers through wireless technologies.** Funded by: Setel S. A., Regional Government of Cantabria (INVESNOVA 2003 program). July 2004-July 2005. Principal Investigator (PI): Luis Vielva. Budget: 47.565 €.
- **Distributed wireless system for tower crane monitoring.** Funded by: Innova Consulting, Regional Government of Cantabria (INVESNOVA 2003 program). August 2004-July 2005. Principal Investigator (PI): Jesús Ibáñez. Budget: 55.332 €.
- **Software radio testbed for 4G mobile communications systems (TIC2001-0751-C04-03).** Funded by: Spanish Government, Ministry of Science and Technology (MCYT). December 2001-December 2004. Principal Investigator (PI): Ignacio Santamaría. Budget: 94.971 €.
- **Desarrollo de un Modem para líneas eléctricas de baja tensión.** Funded by: IKUSI. April 2000-December 2000 Principal Investigator (PI): Carlos Pantaleón. Budget: 32.086 €.
- **Design of linearized high power amplifiers using nonlinear modelling and predistortion techniques (1FD97-1863-C02-01).** Funded by: Spanish Government (CICYT) & European Union (FEDER) FEDER/CICYT. October 1999-December 2001. Principal Investigator (PI): Ignacio Santamaría. Budget: 131.140 €.

- **Sistema TCR Multibanda/Multimisión.** Funded by: Thales Alenia Space. April 2000-January 2001 Principal Investigator (PI): Jose Luis García. Budget: 34.858 €.
- **Development of WLAN networks for communication systems (1FD97-1066-C02-01).** Funded by: Spanish Government (CICYT) & European Union (FEDER) FEDER/CICYT. October 1999-December 2001. Principal Investigator (PI): Antonio Tazón. Budget: 355.228 €.
- **Retrasdig-TVD.** Funded by: IKUSI. March 1995-July 1997. Principal Investigator (PI): Jose Luis García. Budget: 211.452 €.
- **Cellular Access Broadband Services and Interactive Television (CABSINET).** Funded by: SETELSA (Sistemas Electrónicos y Telecomunicación, SA). February 1997-April 2000. Principal Investigator (PI): Jose Luis García. Budget: 527.983 €.
- **Digital transparent transmodulator.** Funded by: IKUSI. March 1995-July 1997. Principal Investigator (PI): Jose Luis García. Budget: 70.972 €.
- **Nature-based algorithms applied to prediction, decision and communications (TIC96-1074-C02-01).** Funded by: Spanish Government (CICYT). January 1997-December 1999. Principal Investigator (PI): Carlos Pantaleón. Budget: 42.000 €.
- **Aplicación de Algoritmos Basados en Procesos Naturales a la Predicción, la Decisión y la Comunicación.** Funded by: Fundación VODAFONE. November 1996-November 1997. Principal Investigator (PI): Ignacio Santamaría. Budget: 12.210 €.
- **Desarrollo de Unidad de Adquisición y Tratamiento de Señales Basada en DSPs.** Funded by: SETELSA (Sistemas Electrónicos y Telecomunicación, SA)E. January 1995-October 1997. Principal Investigator (PI): Carlos Pantaleón. Budget: 104.576 €.

6. Student Supervision

- Ph. D. students
 1. Diego Cuevas, *Advanced Grassmannian Constellation Designs for Noncoherent MIMO Communications*, University of Cantabria, 2024.
 2. Vaibhav Garg, *Subspace-based Order Estimation Techniques in Massive MIMO*, University of Cantabria, 2021.
 3. Jacobo Fanjul Fernández, *Analysis and Experimental Evaluation of Flexible Duplexing for Multi-Tier MIMO Networks*, University of Cantabria, 2019.
 4. Julio César Manco-Vásquez, *Experimental Evaluation of New Detection Techniques for Cognitive Radio Networks*, University of Cantabria, 2015.
 5. Christian Lameiro, *Cooperative Techniques for Interference Management in Wireless Networks*, University of Cantabria, 2015.
 6. Oscar González, *Interference Alignment in MIMO Networks: Feasibility and Transceiver Design*, University of Cantabria, 2014.
 7. Fouad Gholam, *Beamforming Design for RF-MIMO Architectures*, University of Cantabria, 2011.
 8. David Ramírez, *Detection and Estimation of Time Series using a Multi-sensor Array*, University of Cantabria, 2011.
 9. Steven Van Vaerenbergh, *Kernel methods for nonlinear identification, equalization and separation of signals*, University of Cantabria, 2010.
 10. Javier Vía, *Blind channel estimation and equalization of MIMO channels with and without spatial redundancy*, University of Cantabria, 2007.

11. David Luengo, *Optimal estimation of chaotic signals*, University of Cantabria, 2006.
12. Jesús Ibáñez, *Polynomial techniques in signal processing: applications to interpolation, nonlinear modeling and communications*, University of Cantabria, 2004.
13. Marcelino Lázaro, *Nonlinear modeling techniques with derivative constraints and its application to communications*, University of Cantabria, 2001.

- M. S. students
 - Advisor of more than 50 M. Sc. students.

7. Patents

- “Blind equalizers using probability density matching and Parzen windowing”, Deniz Erdogmus, Marcelino Lázaro, Jose Carlos Príncipe, Ignacio Santamaría, US Patent # 6,963,604 on Nov. 8, 2005.
- “MIMO Transmissions in IEEE 802.11 WLAN Systems”, I. Santamaría, J. Vía, J. Ibáñez, J. Pérez, R. Kraemer, M. Krstic, Z. Stamenkovic, K. Tittlebach-Helmrich, EU Patent: EP09156126.6, March 2011.

8. Books

1. “Coherence in Signal Processing and Machine Learning,” D. Ramirez, I. Santamaria, and L. Scharf, Springer Nature, Sept. 2022.

9. Book Chapters

1. S. Van Vaerenbergh, I. Santamaría, “Online Regression with Kernels”, Regularization, Optimization, Kernels, and Support Vector Machines, no. Machine Learning & Pattern Recognition Series, New York, Chapman and Hall/CRC, pp. 477-501, 2014.
2. D. Luengo, I. Santamaría, “Asymptotically Optimal Estimation Techniques for Chaotic Digital Communications”, Chapter 9 in *Chaotic Signals in Digital Communications*, M. Eisenkraft, R. Attux and R. Suyama (Eds.), CRC Press, 2013, (ISBN 978-1-4665-5722-2).
3. J. C. Principe, W. Liu, P. Pokharel, J. Xu, I. Santamaría, K. Jeong, Il Parlk, R. Li, “Co-entropy: Properties and applications in statistics and non-Gaussian signal processing”, Chapter 11 in *Information Theoretic Learning: Renyi’s Entropy and Kernel Perspectives*, J. C. Principe, Springer Verlag, 2010, (ISBN 978-1-4419-1569-6).
4. I. Santamaría, J. Vía, V. Elvira, J. Ibáñez, J. Pérez, R. Eickhoff, U. Mayer, “Low Cost and Compact RF-MIMO Transceivers”, Chapter 20 in *Handbook of Smart Antennas for RFID Systems*, N. Karmakar (Ed.), John Wiley., 2010, (ISBN: 978-0-470-38764-1).
5. J. Vía, I. Santamaría, J. Ibáñez, “Blind Channel Estimation in Space-Time Block Coded Systems”, Chapter VIII in *Handbook of Advancements in Smart Antenna Technologies for Wireless Networks*, C. Sun, J. Cheng and T. Ohira (Eds.), pp. 156-182, Idea Group Inc., USA, 2008, (ISBN: 978-1-599049885).
6. S. Van Vaerenbergh, I. Santamaría, “A Spectral Clustering Approach for Blind Decoding of MIMO Transmissions over Time-Correlated Fading Channels”, Chapter 12 in *Intelligent Systems: Techniques and Applications*, Evor Hines et. al. (Eds.), pp. 351-378, Shaker Publishing, The Netherlands, 2008, (ISBN: 978-90-423-0345-4).

10. Journal publications

1. J. Perez, I. Santamaria, A. Pagés-Zamora, “Adaptive fusion rule for wireless sensor networks with time-varying sensing and reporting channels,” *Signal Processing*, Volume 252, 2027.
2. X. Han, J. Chen, I. Santamaría, A. L. F. de Almeida, F. Gao and B. Chen, “A Low-Rank Tucker Decomposition-Based Channel Estimator for IRS-Assisted mmWave OFDM Systems,” *IEEE Open Journal of the Communications Society*, vol. 7, pp. 7881-7897, 2026.
3. K. -H. Ngo, D. Cuevas, R. D. M. Gil, V. M. Baeza, A. G. Armada and I. Santamaria, “Noncoherent MIMO Communications: Theoretical Foundation, Design Approaches, and Future Challenges,” *IEEE Open Journal of Vehicular Technology*, vol. 7, pp. 381-401, 2026.
4. M. Soleymani, A. Zappone, E. Jorswieck, M. D. Renzo and I. Santamaria, “Spectral?Energy Efficiency Tradeoff of Nearly-Passive RIS in MIMO URLLC Downlink: Diagonal Versus Beyond Diagonal,” *IEEE Wireless Communications Letters*, vol. 15, pp. 890-894, 2026.
5. J. Perez, I. Santamaria, A. Pagés-Zamora, “Blind learning of the optimal fusion rule in wireless sensor networks,” *Signal Processing*, Volume 239, 2026.
6. M. Soleymani, I. Santamaria, E. Jorswieck, M. Di Renzo, R. Schober and L. Hanzo, “Rate Splitting Multiple Access for RIS-Aided URLLC MIMO Broadcast Channels,” *IEEE Transactions on Wireless Communications*, vol. 25, pp. 1529-1546, 2026.
7. I. Santamaria, J. Gutiérrez, M. Soleymani and E. Jorswieck, “Rate Analysis and Optimization of LoS Beyond Diagonal RIS-Assisted MIMO Systems,” *IEEE Communications Letters*, vol. 29, no. 6, pp. 1325-1329, June 2025.
8. I. Santamaria, M. Soleymani, E. Jorswieck and J. Gutiérrez, “Interference Minimization in Beyond-Diagonal RIS-Assisted MIMO Interference Channels,” *IEEE Open Journal of Vehicular Technology*, vol. 6, pp. 1005-1017, 2025.
9. M. Soleymani, I. Santamaria, E. Jorswieck, R. Schober and L. Hanzo, “Optimization of the Downlink Spectral- and Energy- Efficiency of RIS-Aided Multi-User URLLC MIMO Systems,” *IEEE Transactions on Communications*, vol. 73, no. 5, pp. 3497-3513, May 2025.
10. M. Soleymani, A. Zappone, E. Jorswieck, M. Di Renzo and I. Santamaria, “Rate Region of RIS-Aided URLLC Broadcast Channels: Diagonal Versus Beyond Diagonal Globally Passive RIS,” *IEEE Wireless Communications Letters*, vol. 14, no. 2, pp. 320-324, Feb. 2025.
11. G. Stanton, D. Ramírez, I. Santamaria, L. Scharf and H. Wang, “Multi-Channel Factor Analysis: Identifiability and Asymptotics,” *IEEE Transactions on Signal Processing*, vol. 72, pp. 3562-3577, 2024.
12. D. Ramirez, I. Santamaria, and L. L. Scharf, “Passive Detection of a Random Signal Common to Multi-Sensor Reference and Surveillance Arrays” *IEEE Transactions on Vehicular Technology*, vol. 73, no. 7, pp. 10106-10107, July 2024.
13. M. Soleymani, I. Santamaria, E. A. Jorswieck and B. Clerckx, “Optimization of Rate-Splitting Multiple Access in Beyond Diagonal RIS-Assisted URLLC Systems,” *IEEE Transactions on Wireless Communications*, vol. 23, no. 5, pp. 5063-5078, May 2024.
14. D. Cuevas, J. Álvarez-Vizoso, C. Beltrán, I. Santamaria, V. Tucek and G. Peters, “Constellations on the Sphere With Efficient Encoding-Decoding for Noncoherent Communications” *IEEE Transactions on Wireless Communications*, vol. 23, no. 3, pp. 1886-1898, March 2024.
15. J. Alvarez-Vizoso, C. Beltran, D. Cuevas, I. Santamaría, Vít Tucek and G. Peters, “Statistical Characterization of the Chordal Product Determinant of Grassmannian Codes,” *Information and Inference: A Journal of the IMA*, vol. 12, issue 3, Sept 2023.

16. I. Santamaria, M. Soleymani, E. Jorswieck and J. Gutiérrez, "SNR Maximization in Beyond Diagonal RIS-Assisted Single and Multiple Antenna Links," *IEEE Signal Processing Letters*, vol. 30, pp. 923-926, 2023.
17. M. Soleymani, I. Santamaria, E. Jorswieck and S. Rezvani, "NOMA-Based Improper Signaling for Multicell MISO RIS-Assisted Broadcast Channels," *IEEE Transactions on Signal Processing*, vol. 71, pp. 963-978, 2023.
18. J. Álvarez-Vizoso, D. Cuevas, C. Beltrán, I. Santamaria, V. Tušek and G. Peters, "Constrained Riemannian Noncoherent Constellations for the MIMO Multiple Access Channel," *IEEE Transactions on Information Theory*, vol. 69, no. 7, pp. 4559-4578, July 2023.
19. D. Cuevas, J. Álvarez-Vizoso, C. Beltrán, I. Santamaria, V. Tušek and G. Peters, "Union Bound Minimization Approach for Designing Grassmannian Constellations," *IEEE Transactions on Communications*, vol. 71, no. 4, pp. 1940-1952, April 2023.
20. M. Soleymani, I. Santamaria and E. A. Jorswieck, "Rate Splitting in MIMO RIS-Assisted Systems With Hardware Impairments and Improper Signaling," *IEEE Transactions on Vehicular Technology*, vol. 72, no. 4, pp. 4580-4597, April 2023.
21. M. Soleymani, I. Santamaria, and P. J. Schreier, "Improper signaling for multicell MIMO RIS-assisted broadcast channels with I/Q imbalance" *IEEE Transactions on Green Communications and Networking*, vol. 6, issue 2, pp. 723-738, June, 2022.
22. P. Gimenez-Febrer, A. Pages-Zamora, and I. Santamaria, "Passive sampling in reproducing kernel Hilbert spaces" *Signal Processing*, vol. 199, May, 2022.
23. V. Garg, A. Pages-Zamora, and I. Santamaria, "Order estimation via matrix completion for multi-switch antenna selection" *IEEE Signal Processing Letters*, vol. 28, pp. 2063-2067, 2021.
24. V. Elvira and I. Santamaria, "An efficient sampling scheme for the eigenvalues of dual Wishart matrices" *IEEE Signal Processing Letters*, vol. 28, pp. 2177-2181, 2021.
25. V. Elvira, and I. Santamaria, "Multiple importance sampling for symbol error rate estimation of maximum-likelihood detectors in MIMO channels", *IEEE Transactions on Signal Processing*, vol. 69, pp. 1200-1212, March, 2021.
26. V. Garg, P. Gimenez-Febrer, A. Pages-Zamora, and I. Santamaria, "DOA estimation via shift-invariant matrix completion", *Signal Processing*, vol. 183, 2021.
27. M. Soleymani, I. Santamaria, and P. J. Schreier, "Improper Gaussian signaling for the K-user MIMO interference channels with hardware impairments", *IEEE Transactions on Vehicular Technology*, vol. 69, no. 10, pp. 11632-11645, October, 2020.
28. J. Fanjul, R. D. Fernández, J. Ibáñez, J. A. García-Naya, and I. Santamaria, "Experimental evaluation of flexible duplexing in multi-tier MIMO networks", *EURASIP Journal on Wireless Communications and Networking*, September, 2020.
29. D. Ramírez, I. Santamaria, L. L. Scharf, and S. Van Vaerenbergh, "Multi-channel factor analysis with common and unique factors", *IEEE Transactions on Signal Processing*, vol. 68, no. 1, pp. 113-126, 2020.
30. I. Santamaría, L. L. Scharf, and D. Ramírez, "Scale-invariant subspace detectors based on first and second-order statistical models", *IEEE Transactions on Signal Processing*, vol. 68, pp. 6432-6443, 2020.
31. C. Lameiro, I. Santamaria, P. J. Schreier, and W. Utschick, "Maximally improper signaling in underlay MIMO cognitive radio networks", *IEEE Transactions on Signal Processing*, vol. 67, no. 24, pp. 6241-6255, Dec. 2019.

32. M. Soleymani, I. Santamaria, C. Lameiro, and P. J. Schreier, "Ergodic rate for fading interference channels with proper and improper Gaussian signaling", *Entropy*, vol. 21, no. 10, September, 2019.
33. M. Soleymani, C. Lameiro, I. Santamaria, and P. J. Schreier, "Improper signaling for SI-SO two-user interference channels with additive asymmetric hardware distortion", *IEEE Transactions on Communications*, vol. 67, no. 12, pp. 8624-8638, Dec. 2019.
34. J. A. López-Fernández, R. González Ayestarán, I. Santamaria, and C. Lameiro, "Design of asymptotically optimal improper constellations with hexagonal packing", *IEEE Transactions on Communications*, vol. 67, no. 8, pp. 5445-5457, August, 2019.
35. M. Soleymani, C. Lameiro, I. Santamaria, and P. J. Schreier, "Robust improper signaling for two-user SISO interference channels", *IEEE Transactions on Communications*, vol. 67, no. 7, pp. 4709-4723, July, 2019.
36. V. Garg, I. Santamaria, D. Ramirez, and L. L. Scharf, "Subspace Averaging and Order Determination for Source Enumeration", *IEEE Transactions on Signal Processing*, vol. 67, no. 11, pp. 3028-3041, June, 2019.
37. V. Elvira and I. Santamaria, "Multiple Importance Sampling for Efficient Symbol Error Rate Estimation" *IEEE Signal Processing Letters*, vol. 26, no. 3, pp. 420-424, March, 2019.
38. C. Lameiro, I. Santamaria and P. J. Schreier, "Improper Gaussian signaling for multiple-access channels in underlay cognitive radio" *IEEE Transactions on Communications*, vol. 67, no. 3, pp. 1817-1830, March, 2019 .
39. D. Ramírez, D. Romero, J. Vía, R. López-Valcarce, and I. Santamaría, "Testing Equality of Multiple Power Spectral Densities", *IEEE Transactions on Signal Processing*, vol. 66, no. 23, pp. 6268-6280, Dec. 2018.
40. I. Santamaria, P. Crespo, C. Lameiro, and P. J. Schreier, "Information-Theoretic Analysis of a Family of Improper Discrete Constellations" *Entropy*, vol. 20(1), 45; doi:10.3390/e20010045.
41. I. Santamaria, L. L. Scharf, J. Via, Y. Wang, and H. Wang, "Passive detection of correlated subspace signals in two MIMO channels", *IEEE Transactions on Signal Processing*, vol. 65, no. 20, pp. 5266-5280, Oct. 2017.
42. J. Fanjul, Ó. González, I. Santamaría, and C. Beltrán, "Homotopy Continuation for Spatial Interference Alignment in Arbitrary MIMO X Networks", *IEEE Transactions on Signal Processing*, vol. 65, issue 7, pp. 1752-1764, April, 2017.
43. C. Lameiro, I. Santamaría, and P. J. Schreier "Rate region boundary of the SISO Z-interference channel with improper signaling", *IEEE Transactions on Communications*, vol. 65, no. 3, pp. 1022-1034, March, 2017.
44. C. Lameiro, W. Utschick, and I. Santamaría, "Spatial interference shaping for underlay MIMO cognitive networks", *Signal Processing*, vol. 134, pp. 174-184, 2017.
45. Ó. González, C. Beltrán and I. Santamaría, "On the Number of Interference Alignment Solutions for the K-User MIMO Channel with Constant Coefficients", *IEEE Transactions on Information Theory*, vol. 61, pp. 6028-6048, Nov. 2015.
46. D. Ramírez, P. J. Schreier, J. Vía, I. Santamaría and L. L. Scharf "Detection of Multivariate Cyclostationarity", *IEEE Transactions on Signal Processing*, vol. 63, pp. 5395-5408, Oct. 2015.
47. C. Lameiro, Ó. González, J. A. García-Naya, I. Santamaría and L. Castedo, "Experimental Evaluation of Interference Alignment for Broadband WLAN Systems", *EURASIP Journal on Wireless Communications and Networking*, vol. 180, pp. 1-21, June 2015.

48. C. Lameiro, I. Santamaría and P. J. Schreier, "Benefits of Improper Signaling for Underlay Cognitive Radio", *IEEE Wireless Communications Letters*, vol. 4, no. 1, pp. 22-25, Feb. 2015.
49. Ó. González, C. Lameiro and I. Santamaría, "A Quadratically Convergent Method for Interference Alignment in MIMO Interference Channels", *IEEE Signal Processing Letters*, vol. 21, pp. 1423-1427, Nov. 2014.
50. Ó. González, C. Beltrán, and I. Santamaría, "A Feasibility Test for Linear Interference Alignment in MIMO Channels with Constant Coefficients", *IEEE Transactions on Information Theory*, vol. 60, pp. 1840-1856, March 2014.
51. J. Manco-Vásquez, M. Lázaro-Gredilla, D. Ramírez, J. Vía, and I. Santamaría, "A Bayesian Approach for Adaptive Multiantenna Sensing in Cognitive Radio Networks", *Signal Processing*, vol. 96, pp. 228-240, February 2014.
52. D. Ramirez, P. J. Schreier, J. Vía, and I. Santamaría, "Testing Blind Separability of Complex Gaussian Mixtures", *Signal Processing*, vol. 95, no. 2, pp. 49-57, February 2014.
53. J. Manco-Vásquez, S. Van Vaerenbergh, J. Vía and I. Santamaría, "Kernel Canonical Correlation Analysis for Robust Cooperative Spectrum Sensing in Cognitive Radio Networks", *Transactions on Emerging Telecommunications Technologies*, pp. 1-13, February 2014.
54. S. Van Vaerenbergh, I. Santamaría, and P. E. Barbano, "Semi-Supervised Object Recognition Based on Connected Image Transformations", *Expert Systems with Applications*, vol. 40, no. 17, pp. 7069-7079, December 2013.
55. F. Pérez-Cruz, S. Van Vaerenbergh, J. J. Murillo-Fuentes, M. Lázaro-Gredilla, and I. Santamaría, "Gaussian Processes for Nonlinear Signal Processing", *IEEE Signal Processing Magazine*, vol. 30, no. 4, pp. 40-50, July 2013.
56. S. Van Vaerenbergh, J. Vía, and I. Santamaría, "Blind Identification of SIMO Wiener Systems based on Kernel Canonical Correlation Analysis", *IEEE Transactions on Signal Processing*, vol. 61, no. 9, pp. 2219-2230, May 2013.
57. D. Ramírez, J. Vía, I. Santamaría, and L. L. Scharf, "Locally Most Powerful Invariant Tests for Correlation and Sphericity of Gaussian Vectors", *IEEE Transactions on Information Theory*, vol. 59, pp. 2128-2141, April 2013.
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11. International Conferences

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162. J. Via, I. Santamaría and J. Pérez, "Canonical correlation analysis (CCA) algorithms for multiple data sets: application to blind SIMO equalization," *13th European Signal Processing Conference (EUSIPCO 2005)*, Antalya, Turkey, September 2005.
163. U. Ozertem, D. Erdogmus and I. Santamaría, "Detection of nonlinearly distorted signals using mutual information," *13th European Signal Processing Conference (EUSIPCO 2005)*, Antalya, Turkey, September 2005.
164. I. Santamaría, D. Erdogmus, R. Agrawal and J. C. Principe, "Robust matched filtering in the feature space," *13th European Signal Processing Conference (EUSIPCO 2005)*, Antalya, Turkey, September 2005.
165. J. Pérez, J. Ibáñez, L. Vielva and I. Santamaría, "Approximate closed-form expression for the ergodic capacity of MISO and SIMO systems," *IEEE Vehicular Technology Conference, Spring (VTC 2005)*, Stockholm, Sweden, May 2005.
166. D. Luengo and I. Santamaría, "Secure communications using OFDM with chaotic modulation in the subcarriers," *IEEE Vehicular Technology Conference, Spring (VTC 2005)*, Stockholm, Sweden, May 2005.
167. J. Vía, I. Santamaría and J. Pérez, "A robust RLS algorithm for adaptive canonical correlation analysis," *IEEE Int. Conf. on Acoust., Speech, and Signal Processing (ICASSP 2005)*, Philadelphia, USA, March 2005.
168. M. Lázaro, I. Santamaría, J. Vía and D. Erdogmus, "Blind equalization of multilevel signals using support vector machines," *12th European Signal Processing Conference (EUSIPCO 2004)*, Vienna, Austria, September 2004.
169. J. Vía, I. Santamaría and M. Lázaro, "Blind restoration of binary signals using a line spectrum fitting approach," *12th European Signal Processing Conference (EUSIPCO 2004)*, Vienna, Austria, September 2004.
170. J. Pérez, J. Ibáñez, L. Vielva and I. Santamaría, "Capacity estimation of polarization-diversity MIMO systems in urban microcellular environments," *15th IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC 2004)*, Barcelona, Spain, September 2004.
171. L. Vielva, I. Santamaría, J. Ibáñez, D. Erdogmus and J. C. Principe, "On the estimation of the mixing matrix for underdetermined blind source separation in an arbitrary number of dimensions," *5th International Conference on Independent Component Analysis and Blind Signal Separation (ICA 2004)*, Granada, Spain, September 2004.

172. J. Pérez, J. Ibáñez, L. Vielva and I. Santamaría, "Performance of MIMO systems based on dual polarized antennas in urban microcellular environments," *IEEE Vehicular Technology Conference, Fall* (VTC 2004), Los Angeles, CA, USA, September 2004.
173. C. C. Gaudes, J. Vía and I. Santamaría, "Robust array beamforming with sidelobe control using support vector machines," *Fifth IEEE Workshop on Signal Processing Advances in Wireless Communications*, (SPAWC 2004), Lisboa, Portugal, July 2004.
174. I. Santamaría, J. Vía and J. Merino, "SVM-based blind beamforming of constant modulus signals," *International Joint Conference on Neural Networks* (IJCNN 2004), Budapest, Hungary, July 2004.
175. C. C. Gaudes, J. Vía and I. Santamaría, "An IRWLS procedure for robust beamforming with sidelobe control," *Third IEEE Sensor Array and Multichannel Signal Processing Workshop* (SAM 2004), Barcelona, Spain, July 2004.
176. J. Ibáñez, I. Santamaría, C. Pantaleón and L. Vielva, "Parametric smoothing of spline interpolation," *IEEE Int. Conf. on Acoust., Speech, and Signal Processing* (ICASSP 2004), Montreal, Canada, May 2004.
177. I. Santamaría, J. Vía and C. C. Gaudes, "Robust identification of SIMO channels: A support vector regression approach," *IEEE Int. Conf. on Acoust., Speech, and Signal Processing* (ICASSP 2004), Montreal, Canada, May 2004.
178. M. Lázaro, I. Santamaría, F. Pérez-Cruz and A. Artes, "Support Vector Machine for the simultaneous approximation of a function and its derivative," *Int. Workshop on Neural Networks for Signal Processing* (NNSP 2003), Toulouse, France, September 2003.
179. D. Luengo, I. Santamaría, L. Vielva and C. Pantaleón, "Underdetermined blind separation of sparse sources with instantaneous and convolutive mixtures," *Int. Workshop on Neural Networks for Signal Processing* (NNSP 2003), Toulouse, France, September 2003.
180. M. Lázaro, I. Santamaría, C. Pantaleón, D. Erdogmus, K. E. Hild II and J. C. Principe, "Blind equalization by sampled PDF fitting," *4th Int. Symposium on Independent Component Analysis and BSS*, Nara, Japan, April 2003.
181. I. Santamaría, J. Ibáñez, L. Vielva and C. Pantaleón, "Blind equalization of constant modulus signals via support vector regression," *IEEE Int. Conf. on Acoust., Speech, and Signal Processing* (ICASSP 2003), Hong Kong, China, April 2003.
182. M. Lázaro, I. Santamaría, C. Pantaleón, D. Erdogmus and J. C. Principe, "Matched PDF-based blind equalization," *IEEE Int. Conf. on Acoust., Speech, and Signal Processing* (ICASSP 2003), Hong Kong, China, April 2003.
183. J. Ibáñez, C. Pantaleón, L. Vielva and I. Santamaría, "Teaching digital communications: A DSP approach," *IEEE Int. Conf. on Acoust., Speech, and Signal Processing* (ICASSP 2003), Hong Kong, China, April 2003.
184. I. Santamaría, C. Pantaleón, L. Vielva and J. C. Principe, "Adaptive blind equalization through quadratic pdf matching," *XI European Signal Processing Conference* (Eusipco 2002), Toulouse, France, September 2002.
185. D. Luengo, C. Pantaleón and I. Santamaría, "Bayesian estimation of discrete chaotic signals by MCMC," *XI European Signal Processing Conference* (Eusipco 2002), Toulouse, France, September 2002.
186. L. Vielva, I. Santamaría, C. Pantaleón, J. Ibáñez, D. Erdogmus and J. C. Principe, "Estimation of the mixing matrix for underdetermined BSS using spectral estimation techniques," *XI European Signal Processing Conference* (Eusipco 2002), Toulouse, France, September 2002.

187. J. Ibáñez, C. Pantaleón, J. Diez and I. Santamaría, "Spline pulse-shaping with ISI-free matched filter receiver," *XI European Signal Processing Conference (Eusipco 2002)*, Toulouse, France, September 2002.
188. I. Santamaría, C. Pantaleón, L. Vielva and J. C. Principe, "A Fast Algorithm for Adaptive Blind Equalization using order- α Renyi Entropy," *IEEE Int. Conf. on Acoust., Speech, and Signal Processing (ICASSP 2002)*, Orlando, FL, USA, May 2002.
189. C. Pantaleón, L. Vielva, D. Luengo and I. Santamaría, "Estimation of a Certain Class of Chaotic Signals: an EM-Based Approach," *IEEE Int. Conf. on Acoust., Speech, and Signal Processing (ICASSP 2002)*, Orlando, FL, USA, May 2002.
190. L. Vielva, D. Erdogmus, C. Pantaleón, I. Santamaría, J. A. Pereda and J. C. Principe, "Underdetermined Blind Source Separation in a Time-Varying Environment," *IEEE Int. Conf. on Acoust., Speech, and Signal Processing (ICASSP 2002)*, Orlando, FL, USA, May 2002.
191. M. Lázaro, I. Santamaría and C. Pantaleón, "A Regularized Digital Filtering Technique for the Simultaneous Reconstruction of a Function and its Derivatives," *8th International Conference on Electronics, Circuits and Systems, (ICECS2001)*, Malta, September 2001.
192. D. Luengo, C. Pantaleón and I. Santamaría, "Competitive Chaotic AR(1) Model Estimation," *Neural Networks for Signal Processing XI (NNSP 2001)*, Falmouth, MA, USA, September 2001.
193. I. Santamaría, C. Pantaleón and J. C. Principe, "Minimizing BER in DFEs with the Adatron Algorithm," *Neural Networks for Signal Processing XI (NNSP 2001)*, Falmouth, MA, USA, September 2001.
194. M. Lázaro, I. Santamaría and C. Pantaleón, "Accelerating the Convergence of EM-Based Training Algorithms for RBF Networks," *6th International Work Conference on Artificial and Natural Neural Networks (IWANN 2001)*, Granada, Spain, June 2001.
195. C. Pantaleón, D. Luengo and I. Santamaría, "Chaotic AR(1) Model Estimation," *IEEE Int. Conf. on Acoust., Speech, and Signal Processing (ICASSP 2001)*, Salt Lake City, Utah, USA, May 2001.
196. I. Santamaría, A. Artés, R. González and C. Pantaleón, "A Data Adaptive Regularization Method for Line Spectrum Estimation," *European Signal Processing Conference (EUSIPCO 2000)*, Tampere, Finland, September 2000.
197. C. Pantaleón, D. Luengo and I. Santamaría, "An Efficient Method for Chaotic Signal Parameter Estimation," *European Signal Processing Conference (EUSIPCO 2000)*, Tampere, Finland, September 2000.
198. C. Pantaleón, D. Luengo and I. Santamaría, "Optimal Estimation of a Class of Chaotic Signals," *5th International Conference on Signal Processing*, Beijing, China, August 2000.
199. M. Lázaro, I. Santamaría, C. Pantaleón, C. Navarro, A. Tazón and T. Fernández, "A Modular Neural Network for Global Modeling of Microwave Transistors," *IEEE International Joint Conference on Neural Networks (IJCNN 2000)*, Como, Italy, July 2000.
200. A. Mediavilla, A. Tazón, J. A. Pereda, M. Lázaro, I. Santamaría and C. Pantaleón, "Neuronal Architecture for Waveguide Inductive Iris Bandpass Filter Optimization," *IEEE International Joint Conference on Neural Networks (IJCNN 2000)*, Como, Italy, July 2000.
201. C. Pantaleón, D. Luengo and I. Santamaría, "Bayesian Estimation of a Class of Chaotic Signals," *IEEE Int. Conf. on Acoust., Speech, and Signal Processing (ICASSP 2000)*, Istanbul, Turkey, June 2000.

202. M. Lázaro, I. Santamaría and C. Pantaleón, “Neural Networks for Large and Small-Signal Modeling of MESFET/HEMT Transistors: A Comparative Study,” *IEEE Instrumentation and Measurement Technology Conference*, Baltimore, Maryland, USA, May 2000.
203. J. Ibáñez, C. Pantaleón, I. Santamaría, T. Fernández and D. Martínez, “Nonlinearity Estimation in Power Amplifiers Based on Undersampled Temporal Data,” *IEEE Instrumentation and Measurement Technology Conference*, Baltimore, Maryland, USA, May 2000.
204. M. Lázaro, I. Santamaría and C. Pantaleón, “A Smooth and Derivable Large-Signal Model for Microwave HEMT Transistors,” *The IEEE International Symposium on Circuits and Systems*, Geneva, Switzerland, May 2000.
205. D. Luengo, C. Pantaleón, I. Santamaría, J. Ibáñez, C. López-Salaverri, F. Madruga, A. Cobo and J. M. López-Higuera, “A Novel Simultaneous Sampling Technique and its Application to Multipoint Optical Fibre Sensor Accelerometers,” *9th International Conf. on Signal Processing Applications and Technology*, Toronto, Canada, September 1998.
206. I. Santamaría, C. Pantaleón and A.R. Figueiras-Vidal, “Joint Segmentation and AR Modeling of Quasistationary Signals Using the EM Algorithm,” *IEEE Workshop on Nonlinear Signal and Image Processing*, Mackinac Island, Michigan, September 1997.
207. R. González, I. Santamaría, C. Pantaleón, J. Ibáñez and E. Gómez, “Improved Procedures for Estimating Amplitudes and Phases of Harmonics with Application to Vibration Analysis,” *IEEE Instrumentation and Measurement Technology Conference*, Ottawa, Canada, May 1997.
208. D. Luengo, C. Pantaleón, I. Santamaría, J. Ibáñez and E. Gómez, “Simultaneous Sampling by Digital Phase Correction,” *IEEE Instrumentation and Measurement Technology Conference*, Ottawa, Canada, May 1997.
209. I. Santamaría, C. Pantaleón, F. Díaz de María and A. Artés, “A New Inverse Filter Criterion for Blind Deconvolution of Spiky Signals Using Gaussian Mixtures,” *Proc. of the 1996 IEEE Int. Conf. on Acoust., Speech, and Signal Processing*, (ICASSP 1996) Atlanta, USA, May 1996.
210. I. Santamaría and A. R. Figueiras-Vidal, “Sparse Deconvolution Using Gaussian Mixtures,” *Sixth IEEE Digital Signal Proc. Workshop*, Yosemite, USA, October 1994.
211. I. Santamaría and A. R. Figueiras-Vidal, “Some Weighted Objective Approaches for Sparse Deconvolution,” *Seventh European Signal Processing Conference*, (EUSIPCO 1994), Edinburgh, Scotland, September 1994.
212. A. Malanda, I. Santamaría and A.R. Figueiras-Vidal, “A Genetic Approach to Sparse Deconvolution,” *4th Cost 229 Workshop on Adaptive Methods and Emergent Techniques for Signal proc. and Comm.*, Ljubljana, Slovenia, April 1994.
213. I. Santamaría and A. R. Figueiras-Vidal, “A Linearized Search to Refine Frequency Estimates,” *2nd Cost 229 Workshop on Adaptive Algorithms in Communications*, Bordeaux, France, September 1992.

12. Courses and invited talks

- *Non-coherent MIMO communications on the Grassmann manifold*, Colorado State University, USA, July 2024.
- *Signal Processing for Future Wireless Networks: from Noncoherent MIMO Communications to RIS-assisted Systems*, IHP, Frankfurt-Oder, Germany, Dec. 2022.

- *Multiple Importance Sampling for Error Rate Estimation*, invited talk at Huawei (virtual), joint work with Victor Elvira, May 2022.
- *Subspace Averaging in Multi-Sensor Array Processing*, invited talk at SIAM Conference on Applied Algebraic Geometry, Bern, Switzerland, July, 2019.
- *Subspace Averaging and Order Determination in Multi-Sensor Array Processing*, Universidad Nacional de Colombia, Sede Manizales, Colombia, June, 2019.
- *Single-Channel and Multi-Channel Factor Analysis*, Universidad Tecnológica de Pereira, Colombia, June, 2019.
- *Machine Learning for Communications*, invited talk at the Workshop on Advanced Wireless Sensor Networks, IHP, Frankfurt-Oder, Germany, February 2016.
- *Interference Alignment in MIMO Interference Channels: Feasibility and Transceiver Design*, Colorado State University and Colorado School of Mines, August-September 2015.
- *Some Recent Results on the Number of IA Solutions for the K-user MIMO Interference Channel*, invited Talk at the ACM International Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc 2014), Philadelphia, USA, August 2014.
- *Research Activities at the GTAS-UC Group*, Huawei, Madrid, Jan. 2010.
- *A General Criterion for Analog Tx-Rx Beamforming Under OFDM Transmissions*, Seminar series at the Wireless Networking and Communication Group, The University of Texas at Austin, October 2009.
- *Simulation of Digital Communication systems with Matlab*, Fagor Electrónica, S. Coop., Spain, April-May 2005.
- *Application of Machine Learning Techniques to Digital Communication Problems*, Universidad Carlos III de Madrid, September 2005.
- *Signal Processing Techniques for Polysomnographic Recording Analysis*, Universidad Carlos III de Madrid, January 2004.
- *SVM for Classification and Regression: Algorithms and Applications*, Centro Politécnico Superior, Universidad de Zaragoza, July 2004.
- *Merging Temporal and PDF Information: From Kernel Matched Filtering to Kernel Autocorrelation*, Computational NeuroEngineering Laboratory, University of Florida, Gainesville, FL, USA, November 2004.
- *Digital Filtering with Matlab*, Summer course “Matlab and Simulink ” Universidad de Cantabria, from 1998 to 2004.
- *Two New Criteria for Digital Channel Equalization: Structural risk minimization and entropy minimization*, Computational NeuroEngineering Laboratory, University of Florida, Gainesville, FL, USA, November 2000.
- *Digital Modem for Power Line Communications*, IKUSI, San Sebastián, Spain, November 2001.

13. Visited institutions

- Colorado State University (CSU), June 2017- July 2017, funded by Ministerio de Educación y Ciencia. Research topic: *Coding and Signal Processing for Emerging Wireless Communication and Sensor Networks (CARMEN)* joint work with Prof. Louis L. Scharf.
- Colorado State University (CSU), June 2015- November 2015, granted by Ministerio de Educación y Ciencia. Research topic: *New Detection and Estimation Techniques for Improper and Cyclostationary Processes* joint work with Prof. Louis L. Scharf.
- Wireless Networking and Communications Group (WNCG), The University of Texas at Austin, October 2009-December 2009, granted by Ministerio de Educación y Ciencia. Research topic: *Advanced Signal Processing Techniques for Multiterminal MIMO Systems* joint work with Prof. Robert W. Heath Jr.
- Computational NeuroEngineering Laboratory (CNEL), University of Florida, October 2004-December 2004, granted by Ministerio de Educación y Ciencia (PR2004-0364). Research topic: *Kernel Methods in Communications*, joint work with Prof. Jose C. Principe.
- Computational NeuroEngineering Laboratory (CNEL), University of Florida, October 2000-December 2000, granted by Ministerio de Educación y Ciencia (PR2000-0183). Research topic: *Information Theoretic Learning*, joint work with Prof. Jose C. Principe.

14. Editorial and Conference Activities

- Subject Area Editor, *Signal Processing*, ELSEVIER, (2024 - present)
- Associate Editor of the *IEEE Transactions on Signal Processing* (2011-2015)
- Senior Area Editor of the *IEEE Transactions on Signal Processing* (2013-2015)
- Special Sessions co-chair of the *IEEE Int. Conf. on Acoustics Speech and Signal Processing (ICASSP 2024)*, Seoul, South Korea, 2024.
- Finance Chair of the *27th European Signal Processing Conference (EUSIPCO 2019)*, La Coruña, España, 2019.
- Publicity co-chair of the *IEEE Int. Conf. on Acoustics Speech and Signal Processing (ICASSP 2016)*, Shanghai, China, 2016.
- General co-chair of the *STATOS Workshop on Machine Learning for Big Data*, Budapest, Hungary, 2016.
- Technical program committee member of the *IEEE Statistical Signal Processing Workshop (SSP 2016)*, Palma de Mallorca, Spain, 2016.
- Area Chair of the *23rd European Signal Processing Conference (EUSIPCO 2015)*, Nize, France, 2015.
- Technical program committee member of the *Eight IEEE Sensor Array and Multichannel Signal Processing Workshop (SAM 2014)*, A Coruña, Spain, 2014.
- Co-Chair of the *3rd Workshop on Physics-Inspired Paradigms in Wireless Communications and Networks (PHYSCOMNET 2014)*, May 16th, 2014, Hammamet, Tunisia.
- Technical program committee member of the *22nd European Signal Processing Conference (EUSIPCO 2014)*, Lisbon, Portugal, 2014.

- Technical program committee member of the *Eleventh International Symposium on Wireless Communications and Systems* (ISWCS 2014), Barcelona, Spain, August 26-29, 2014.
- Technical program committee member of the *21st European Signal Processing Conference* (EUSIPCO 2013), Marrakech, Morocco, Sept. 9-13, 2013.
- General Co-Chair of the *IEEE Workshop on Machine Learning for Signal Processing* (MLSP 2012), Sept. 23-26, 2012, Santander, Spain.
- Guest Editor of the Special Issue on Recent Advances on Wireless Communications and Networking, *EURASIP Journal on Wireless Communications and Networking*, 2012.
- Technical program committee member of the *International Symposium on Signals, Systems and Electronics* (ISSSE 2012), Potsdam, Germany, 3-5 October, 2012.
- Special sessions co-chair of the *19th European Signal Processing Conference* (EUSIPCO 2011), Aug. 29-Sept. 2, 2011, Barcelona, Spain.
- Co-organizer (jointly with R. Eickhoff) of the Special Session “Advanced Radio Techniques for Energy-Efficient Communications” in the *2nd Conference on Mobile Lightweight Wireless Systems* (MOBILIGHT), Barcelona, 2011, Spain.
- Technical program committee member of the *International Conference on Computer Communications* (ISCC 2011), Kerkira, Corfu, Greece, June 28-July 1, 2011.
- Technical program co-chair of the *2nd Conference on Mobile Lightweight Wireless Systems* (MOBILIGHT), Barcelona, Spain, 2010.
- Technical program committee member of the *18th European Signal Processing Conference* (EUSIPCO 2010), Aalborg, Denmark, 23-27 August, 2010.
- Technical program committee member of the *17th European Signal Processing Conference* (EUSIPCO 2009), Glasgow, Scotland, August 24-28, 2009.
- Publicity chair of the *IEEE Workshop on Machine Learning for Signal Processing*, Playa del Carmen, Mexico, October 2008.
- Reviewer for many journals, among them: *IEEE Transactions on Signal Processing*, *IEEE Transactions on Information Theory*, *IEEE Signal Processing Letters*, *IEEE Transactions on Neural Networks and Learning Systems*, *Signal Processing*, *IEEE Communications Letters*, *IEEE Electronic Letters*, *IEEE Transactions on Vehicular Technology*, *Neurocomputing* and *Neural Networks*.
- Reviewer for many international conferences, among them: *IEEE International Conference on Acoustics, Speech and Signal Processing*, *IEEE International Conference on Communications*, *IEEE Workshop on Machine Learning for Signal Processing*, *Globecom*, *European Signal Processing Conference*, *IEEE International Joint Conference on Neural Networks*, *IEEE Vehicular Technology Conference* and *IEEE Int. Symposium on Information Theory*.

15. Other Activities and Merits

- IEEE Senior Member since 2005
- Member of the IEEE Signal Processing Theory and Methods Technical Committee (2020-present)
- Steering Committee Member of the IEEE SP Society Data Science Initiative (2021-present)

- Member of the IEEE Machine Learning for Signal Processing Technical Committee (2009-2014)
- Chair of the Department of Communications Engineering (DICOM), Universidad de Cantabria, (June 2016 - November 2020)
- Recipient of the 2022 IHP International Wolfgang Mehr Fellowship Award.
- Recipient of a Fulbright fellowship in 2017 (supporting his visit to CSU).
- Co-author with D. Ramírez of the IEEE 2012 Signal Processing Society Young Author Best Paper Award.
- Co-author with S. Van Vaerenbergh of the Best Student Paper Award in EUSIPCO 2007.
- Certificate of Merit awarded by the IEEE Signal Processing Society “*for outstanding editorial board service for the IEEE Transactions on Signal Processing*”, 2016
- Co-recipient of the 2008 Rhode&Schwarz IEEEfCOM innovation award for innovative research and development in MIMAX project.
- Vice Dean of the ETSI Industriales y Telecomunicación de la Universidad de Cantabria, (February 1999-April 2003).
- 8500+ citations and h-index = 46 (as of October 2026), according to his Google scholar profile (<http://scholar.google.com/citations?user=37JcaD0AAAAJ&hl=en>).