

Education

- 2011 **Ph.D. in Electrical Engineering**, University of Málaga (Spain)
 Dissertation: “Performance Analysis of Non-Ideal MIMO Systems in Fading Channels”
 Committee: G. Kramer, A. Lozano, J. M. Romero-Jerez, L. Diez, E. Garcia
Best Ph.D. Thesis Award in Electrical Engineering by the University of Málaga (2009-2012).
- 2008 **M.Sc. in Electrical Engineering**, University of Málaga (Spain)
 Dissertation: “Performance Analysis of MIMO-LTE Receivers under Practical Constraints”
- 2006 **B.Sc. in Telecommunications**, University of Málaga (Spain)

Research

Research Interests

My research activities lie within the wide area of statistical signal processing, with cross-disciplinary applications to wireless communications and computational biology, among others. With a focus on random matrix theory and high-dimensional statistics, my research is aimed at providing robust signal processing solutions and machine learning methods suited to the large-dimensional nature of contemporary data. I am particularly interested in: 1) robust estimation and detection solutions to address challenges posed by the ever-growing dimensions (e.g., users, antennas) of wireless networks and associated technologies (e.g., massive MIMO, IoT, large sensor networks), and 2) computational inference methods to help understand the complex dynamics of biological systems such as HIV or HCV viruses.

Publications

- **37 journal papers, 3 book chapters and 22 peer-reviewed conference papers**

A detailed list of these appears on pages 5–8.

Appointments - Research Experience

2022– (March)	Research Professor (Ramón y Cajal)	Department of Signal Theory, Networking and Communications University of Granada (UGR), Spain
2021–2022	Associate Professor	Department of Communication Engineering University of Málaga (UMA), Spain
2018–2021	Assistant Professor (Lecturer)	School of Electronics, Electrical Engineering & Computer Science Queen’s University Belfast (QUB), UK
2016–2018	Assistant Professor (Research)	Department of Electronic & Computer Engineering Hong Kong University of Science and Technology (HKUST)
2014–2016	Visiting Scholar	Signal Processing group, headed by <i>Prof. Matthew R. McKay</i> Hong Kong University of Science and Technology (HKUST)
2011–2014	Postdoctoral Fellow	Wireless Communications group, headed by <i>Prof. Angel Lozano</i> Universitat Pompeu Fabra (UPF), Barcelona (Spain)
2006–2011	Research Assistant	Department of Communication Engineering University of Málaga (UMA), Spain

Visiting Appointments

- 2023 **University of Melbourne** (AUS), Department of Electrical and Electronic Engineering.
(Jan–Apr) Research on statistical signal processing and random matrix theory, with applications to wireless communications and computational biology. Host: *Prof. M. R. McKay*.
- 2015 **Stanford University** (USA), Statistics Department.
(May–Aug) Research on sparse Principal Component Analysis (PCA) methods and spiked random matrix models in large-dimensional settings. Host: *Prof. Iain Johnstone*.
- 2010 **University College London** (UK), Department of Electronic and Electrical Engineering.
(May–Aug) Research on complex Wishart matrices applied to the performance analysis of MIMO systems under practical constraints. Host: *Dr. Kai-Kit Wong*.
- 2004 **University of Oulu** (Finland), Department of Electrical and Information Engineering.
(Jan–Jul) Undergraduate residency within B.Sc. degree.

Funded Research Projects

Participated (as PI, Co-I or team member) in:

- 15 research projects funded by public bodies in competitive calls (2 as PI)
- 4 research contracts with private companies

A list of these appears on page 8.

PhD Supervision

Co-advised (with Prof. Matthew R. McKay):

- Nicolas Auguin, “Random matrix analysis of Gram matrices and large robust covariance matrix estimators with applications”, ECE Department, HKUST, Aug. 2019.
- Syed Faraz Ahmed, “Genetic sequence analysis to inform design of universal vaccines against infectious diseases”, ECE Department, HKUST, Jun. 2021.

Co-advised (with Prof. Simon L. Cotton):

- Jonathan W. Browning, “Modelling and simulation of the complex received signal in wireless communication systems”, CWI, QUB, Apr. 2022.

Teaching

Teaching Experience

2023–2023 **Visiting Professor** Department of Electrical and Electronic Engineering
University of Melbourne

Robust Statistical Inference Methods for High-dimensional Data and Applications, Spring 2023. Invited Postgraduate Course (*MSc and PhD*).

2021–2022 **Associate Professor** Department of Communication Engineering
University of Málaga (UMA), Spain

Mobile Communications, Fall 2021.

Undergraduate (4rd year) – BSc Sound and Image Engineering.

Digital Signal Processing, Fall 2021.

Undergrad (3rd year) – BSc Electronics, Robotics and Mechatronics Engineering.

Applications of Signal Processing (co-taught, 1/2), Fall 2021.

Postgraduate (2nd year) – MSc Telecommunication Engineering.

2018–2021 **Lecturer** School of Electronics, Electrical Engineering and Computer Science
Queen’s University Belfast, UK

Wireless Communications, Full year course (2018–2021).

ELE4009–Undergraduate (4rd year) *MEng Electronics Electrical Engineering*.

ELE8078–Postgraduate *MSc Electronics*.

Average student evaluations: 4.6 / 5.

2014–2017 **Guest Lecturer** Department of Electronic and Computer Engineering
Hong Kong University of Science and Technology

Random Matrix Theory and Applications, Fall 2014–2017.

ELEC5450–Postgraduate *MSc Electronic and Computer Engineering*.

2011–2014 **Lecturer** Department of Information and Communication Technologies
Universitat Pompeu Fabra, Barcelona (Spain)

Wireless Communications, Fall 2011, Fall 2012, and Fall 2013.

Undergraduate course (3rd year).

Average student evaluations: 9.3 / 10.

Invited Talks, Seminars and Tutorials

- “Fighting Viral Disease with Data and Random Matrix Theory”
- Signal Processing Group, Universidad Carlos III de Madrid, Madrid (Spain), Dec. 2019.
- “Challenges in the realization of future wireless networks: a large-dimensional RMT perspective”
- National Mobile Communications Research Lab., SEU, Nanjing (China), Dec. 2017.
- Center for Wireless Innovation, ECIT, Queen’s University of Belfast, Jun. 2017.
- “A tailored sparse PCA method for finding vaccine targets against Hepatitis C”
Invited talk (and paper) at Asilomar Conference on Signals, Systems and Computers, Nov. 2016.
- “The diagonal of complex Wishart matrices and its application to the analysis of MIMO systems”
- Research seminar to PhD students, Dept. Information and Communication Technologies, Universitat Pompeu Fabra (Spain), Feb. 2012.
- Invited talk in “Random Matrix Theory for Communications and Signal Processing”, a PG course at Hong Kong University of Science and Technology, Apr. 2014.
- “Nuts and bolts of the physical layer in LTE”, May 2009,
Tutorial in *International Conference on Wireless Communications, Vehicular Technology, Information Theory and Aerospace and Electronic Systems Technology (Wireless VITAE 2009)*, Aalborg (Denmark).
- “LTE physical layer seminar”, Nov. 2007 – Oct. 2008,
Seminar series (total of 60 hours) given to engineers of AT4 Wireless, a global provider of testing and certification services for wireless communications.

Awards and Distinctions

- Best PhD Thesis Award in Telecommunication Engineering (2009-2012), University of Malaga.
Contributions to random matrix theory and the statistical analysis of 4G multi-antenna systems.
- Best ‘Statistica Sinica’ paper at Joint Statistical Meetings (JSM) 2020.
Publication 8 (see list below) selected by Statistica Sinica and invited for their special session at JSM 2020. This session (with 3 selected papers) is organized only once every 2 years.

- Elected Member of the Technical Committee on Signal Processing for Communications and Networking (SPCOM) of the IEEE Signal Processing Society, 2020–to date.
The TC is responsible for the organization of flagship IEEE conferences in signal processing (e.g., ICASSP, SPAWC, SSP workshop) and for the nomination and coordination of awards in the IEEE SP Society.
- IEEE Senior Member, since Mar. 2019.

Professional Service

Appointments

- IEEE Transactions on Signal Processing: **Associate Editor** (Feb. 2022 to date).
- IEEE SPCOM (Signal Processing Society) Technical Committee, **Elected Member** (Jan. 2020—).

Memberships

- Institute of Electronics, Communications & Information Technologies, QUB, Fellow (2018–2021).
- UK Higher Education Academy, Fellow (since 2019).
- Institute of Electrical and Electronics Engineers (IEEE), Member (2013) and Senior Member (2019).
- IEEE Signal Processing Society, Member (since 2019).
- IEEE SPCOM Technical Committee on Signal Processing for Communications, Member (2020–).

Doctoral Evaluation Committees

- Gonzalo Javier Anaya López, “Physical layer security techniques for beyond 5G networks”, Ph.D. Dissertation, University of Málaga, Dec. 2023.
- Syed Faraz Ahmed, “Genetic sequence analysis to inform design of universal vaccines against infectious diseases”, Ph.D. Dissertation, ECE Department, HKUST, Jun. 2021.
- Lei Zhang, “Time Series Analysis of Indoor Millimetre Wave Distributed Antenna Systems”, Ph.D. Dissertation, School of EEECS, Queen’s University Belfast, Nov. 2020.
- Nicolas Auguin, “Random matrix analysis of Gram matrices and large robust covariance matrix estimators with applications”, Ph.D. Dissertation, ECE Department, HKUST, Aug. 2019.
- Ana Gómez Andrades, “Methods for Self-Healing based on Traces and Unsupervised Learning in Self-Organizing Networks”, Ph.D. Dissertation, University of Málaga, Jul. 2016.
- Fernando Ruiz Vega, “Efficiency and Power Control in Underwater Acoustic Communication Channels”, Ph.D. Dissertation, Communications Engineering, University of Málaga, Dec. 2012.

Organizing Committees

- IEEE CTW 2022: Communication Theory Workshop, Marbella (Spain), Oct. 2022. [*Poster Chair*]
- IEEE SIC (Fall 2022): Spanish Workshop on Signal Processing, Information Theory and Communications, Granada (Spain), Nov. 2022. [*General Co-Chair*]
- IB2COM 2010: IEEE 5th International Conference on Broadband & Biomedical Communications.
- 8th COST 290 Meeting: Traffic and QoS Management in Wireless Multimedia Networks.

Technical Program Committees

- ICASSP: IEEE International Conference on Acoustics, Speech, and Signal Processing.
Technical Program Committee in 2020, 2021, 2022 and 2023 editions.
- SPAWC: IEEE Intl. Workshop on Signal Processing Advances in Wireless Communications.
Technical Program Committee in 2020, 2021, 2022 and 2023 editions.

- WCSP 2017: International Conference on Wireless Communications and Signal Processing. *Technical Program Committee.*
- ICC: IEEE International Conference on Communications. *Technical Program Committee in 2013, 2014, 2017 and 2020 editions.*
- GLOBECOM 2016: IEEE Global Communications Conference. *Technical Program Committee.*
- ICC: IEEE-CIC International Conference on Communications in China. *Technical Program Committee in 2014 and 2015 editions.*
- ICT 2015: EA-IEEE 22nd International Conference on Telecommunications. *Technical Program Committee.*
- MACOM: International Workshop in Multiple Access Communications. *Technical Program Committee in 2013 and 2014 editions.*

Review Activities

- **Journals:** IEEE Transactions on Information Theory, IEEE Transactions on Signal Processing, IEEE Transactions on Wireless Communications, IEEE Transactions on Communications, IEEE Communication Letters, IEEE Wireless Communication Letters, IEEE Transactions on Vehicular Technology, IET Electronic Letters, EURASIP Journal on Wireless Communications and Networking, International Journal of Communication Systems, Random Matrices: Theory and Applications, IEEE Journal of Selected Topics on Signal Processing.
- **Conferences** IEEE International Conference on Communications (ICC), IEEE International Symposium on Information Theory (ISIT), IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), IEEE Vehicular Technology Conference (VTC), IEEE Global Telecommunications Conference (GLOBECOM), IEEE Wireless Communications and Networking Conference (WCNC), International Symposium on Personal, Indoor & Mobile Radio Communications (PIMRC), IEEE International Conference on Broadband & Biomedical Communications (IB2COM).

Publications

Journal papers

1. K. K. Wong, D. Morales-Jimenez, K. F. Tong, and C. B. Chae, "Slow fluid antenna multiple access," *IEEE Transactions on Communications*, vol. 71, no. 5, pp. 2831–2846, May 2023.
2. A. Palomares-Caballero, C. Molero, F. R. Ghadi, F. J. Lopez-Martinez, P. Padilla, D. Morales-Jimenez, and J. F. Valenzuela-Valdes, "Enabling intelligent omni-surfaces in the polarization domain: Principles, implementation and applications," *IEEE Communications Magazine*, vol. 61, no. 11, pp. 144–150, Nov. 2023.
3. F. J. Martín-Vega, G. Gómez, D. Morales-Jimenez, F. J. Lopez-Martinez, and M. C. Aguayo-Torres, "Joint distribution of distance and angles in finite wireless networks," *IEEE Transactions of Vehicular Technology*, vol. 72, no. 10, pp. 13 281–13 297, Oct. 2023.
4. N. Simmons, J. W. Browning, S. L. Cotton, P. C. Sofotasios, D. Morales-Jimenez, M. Matthaiou, and M. A. B. Abbasi, "A simulation framework for cooperative reconfigurable intelligent surface based systems," *IEEE Transactions on Communications*, vol. 72, no. 1, pp. 480–495, Jan. 2024.
5. J. Camacho, R. Vitale, D. Morales-Jimenez, and C. Gómez-Llorente, "Variable-selection ANOVA simultaneous component analysis (VASCA)," *Bioinformatics*, vol. 3, no. 1, pp. 1–9, Jan. 2023.
6. J. W. Browning, S. L. Cotton, P. C. Sofotasios, D. Morales-Jimenez, and M. D. Yacoub, "A unification of LoS, non-LoS and quasi-LoS signal propagation in wireless channels," *IEEE Transactions on Antennas and Propagation*, vol. 71, no. 3, pp. 2682–2696, Mar. 2023.
7. N. Auguin, D. Morales-Jimenez, and M. R. McKay, "Large-dimensional characterization of robust linear discriminant analysis," *IEEE Transactions on Signal Processing*, vol. 69, pp. 2625–2638, Apr. 2021.
8. D. Morales-Jimenez, I. M. Johnstone, M. R. McKay, and J. Yang, "Asymptotics of eigenstructure of sample correlation matrices for high-dimensional spiked models," *Statistica Sinica*, vol. 31, no. 2, pp. 571–601, Apr. 2021.

9. M. Matthaiou, O. Yurduseven, H. Q. Ngo, D. Morales-Jimenez, S. L. Cotton, and V. F. Fusco, "The road to 6G: Ten physical layer challenges for communications engineers," *IEEE Communications Magazine*, vol. 59, no. 1, pp. 64–69, Jan. 2021.
10. A. A. Quadeer, D. Morales-Jimenez, and M. R. McKay, "RocaSec: A standalone GUI-based package for robust co-evolutionary analysis of proteins," *Bioinformatics*, vol. 36, no. 7, pp. 2262–2263, Apr. 2020.
11. L. Moreno-Pozas, D. Morales-Jimenez, and M. R. McKay, "Extreme eigenvalue distributions of Jacobi ensembles: New exact representations, asymptotics and finite size corrections," *Nuclear Physics B*, vol. 947, no. 114724, Oct. 2019.
12. S. F. Ahmed, A. A. Quadeer, D. Morales-Jimenez, and M. R. McKay, "Sub-dominant principal components inform new vaccine targets for HIV Gag," *Bioinformatics*, vol. 35, no. 20, pp. 3884–3889, Oct. 2019.
13. J. W. Browning, S. L. Cotton, D. Morales-Jimenez, and F. J. Lopez-Martinez, "The Rician complex envelope under line of sight shadowing," *IEEE Communications Letters*, vol. 23, no. 12, pp. 2182–2186, Dec. 2019.
14. P. Ramirez-Espinosa, D. Morales-Jimenez, J. A. Cortés, J. F. Paris, and E. Martos-Naya, "A new approximation to the distribution of positive RVs applied to Gaussian quadratic forms," *IEEE Signal Processing Letters*, vol. 26, no. 6, pp. 923–927, Jun. 2019.
15. A. A. Quadeer, D. Morales-Jimenez, and M. R. McKay, "Co-evolution networks of HIV/HCV are modular with direct association to structure and function," *PLoS Computational Biology*, vol. 14, no. 9, pp. 1–29, Sep. 2018.
16. N. Auguin, D. Morales-Jimenez, M. R. McKay, and R. Couillet, "Large-dimensional behavior of regularized Maronna's M-estimators of covariance matrices," *IEEE Transactions on Signal Processing*, vol. 66, no. 13, pp. 3529–3542, Jul. 2018.
17. L. Moreno-Pozas, D. Morales-Jimenez, M. R. McKay, and E. Martos-Naya, "Largest eigenvalue distribution of noncircularly-symmetric Wishart-type matrices with application to Hoyt-faded MIMO communications," *IEEE Transactions of Vehicular Technology*, vol. 67, no. 3, pp. 2756–2760, Mar. 2018.
18. N. Auguin, D. Morales-Jimenez, and M. R. McKay, "Exact statistical characterization of 2x2 Gram matrices with arbitrary variance profile," *IEEE Transactions of Vehicular Technology*, vol. 66, no. 9, pp. 8575–8579, Sep. 2017.
19. D. Morales-Jimenez, R. Couillet, and M. R. McKay, "Large dimensional analysis of robust M-estimators of covariance with outliers," *IEEE Transactions on Signal Processing*, vol. 63, no. 21, pp. 5784–5797, Nov. 2015.
20. D. Morales-Jimenez, R. H. Y. Louie, M. R. McKay, and Y. Chen, "Analysis and design of multiple-antenna cognitive radios with multiple primary user signals," *IEEE Transactions on Signal Processing*, vol. 63, no. 18, pp. 4925–4939, Sep. 2015.
21. Q. Zhang, S. Jin, M. R. McKay, D. Morales-Jimenez, and H. Zhu, "Power allocation schemes for multicell massive MIMO systems," *IEEE Transactions on Wireless Communications*, vol. 14, no. 11, pp. 5941–5955, Nov. 2015.
22. G. Gomez, F. Lopez-Martinez, D. Morales-Jimenez, and M. McKay, "On the equivalence between interference and eavesdropping in wireless communications," *IEEE Transactions on Vehicular Technology*, vol. 64, no. 12, pp. 5935–5940, Dec. 2015.
23. F. J. Lopez-Martinez and D. Morales-Jimenez, "A new twist on the Nuttall function $Q_{m,n}(a,b)$," *Integral Transforms and Special Functions*, vol. 26, no. 7, pp. 523–530, 2015.
24. R. Mungara, D. Morales-Jimenez, and A. Lozano, "System-level performance of interference alignment," *IEEE Transactions on Wireless Communications*, vol. 14, no. 2, pp. 1060–1070, Feb. 2015.
25. N. Lee, D. Morales-Jimenez, A. Lozano, and R. Heath, "Spectral efficiency of dynamic coordinated beamforming: A stochastic geometry approach," *IEEE Transactions on Wireless Communications*, vol. 14, no. 1, pp. 230–241, Jan. 2015.
26. F. Blaquez-Casado, F. Martin-Vega, D. Morales-Jimenez, G. Gomez, and J. Entrambasaguas, "Adaptive SOVA for 3GPP-LTE receivers," *IEEE Communications Letters*, vol. 18, no. 6, pp. 991–994, Jun. 2014.
27. D. Morales-Jimenez, F. J. Lopez-Martinez, E. Martos-Naya, J. F. Paris, and A. Lozano, "Connections between the generalized Marcum Q-function and a class of hypergeometric functions," *IEEE Transactions on Information Theory*, vol. 60, no. 2, pp. 1077–1082, Feb. 2014.
28. F. J. Lopez-Martinez, D. Morales-Jimenez, E. Martos-Naya, and J. F. Paris, "On the bivariate Nakagami- m cumulative distribution function: Closed-form expression and applications," *IEEE Transactions on Communications*, vol. 61, no. 4, pp. 1404–1414, Apr. 2013.
29. D. Morales-Jimenez, J. F. Paris, and K.-K. Wong, "Closed-form analysis of multibranch switched diversity with noncoherent and differentially coherent detection," *International Journal of Communication Systems*, vol. 26, no. 1, pp. 127–137, 2013.

30. D. Morales-Jimenez, J. Paris, and A. Lozano, "Outage probability analysis for MRC in η - μ fading channels with co-channel interference," *IEEE Communications Letters*, vol. 16, no. 5, pp. 674–677, May 2012.
31. D. Morales-Jimenez, J. F. Paris, J. T. Entrambasaguas, and K.-K. Wong, "On the diagonal distribution of a complex Wishart matrix and its application to the analysis of MIMO systems," *IEEE Transactions on Communications*, vol. 59, no. 12, pp. 3475–3484, Dec. 2011.
32. D. Morales-Jimenez and J. F. Paris, "Outage probability analysis for η - μ fading channels," *IEEE Communications Letters*, vol. 14, no. 6, pp. 521–523, Jun. 2010.
33. J. F. Paris and D. Morales-Jimenez, "Outage probability analysis for Nakagami- q (Hoyt) fading channels under rayleigh interference," *IEEE Transactions on Wireless Communications*, vol. 9, no. 4, pp. 1272–1276, Apr. 2010.
34. G. Gómez, D. Morales-Jimenez, J. J. Sánchez-Sánchez, and J. T. Entrambasaguas, "A next generation wireless simulator based on MIMO-OFDM: LTE case study," *EURASIP Journal on Wireless Communications and Networking*, vol. 2010, Article ID 161642, 14 pages, 2010.
35. D. Morales-Jimenez and J. F. Paris, "Closed-form analysis of dual-branch switched diversity with binary nonorthogonal signalling," *Electronics Letters*, vol. 45, no. 23, pp. 1179–1180, Nov. 2009.
36. D. Morales-Jimenez, J. F. Paris, and J. T. Entrambasaguas, "Performance tradeoffs among low-complexity detection algorithms for MIMO-LTE receivers," *International Journal of Communication Systems*, vol. 22, no. 7, pp. 885–897, Jul. 2009.
37. D. Morales-Jimenez, J. J. Sánchez, G. Gómez, M. C. Aguayo-Torres, and J. T. Entrambasaguas, "Imperfect adaptation in next generation OFDMA cellular systems," *Journal of Internet Engineering*, vol. 3, no. 1, pp. 202–209, 2009.

Book chapters

1. G. Gómez, D. Morales-Jimenez, F. J. López-Martínez, J. J. Sánchez, and J. T. Entrambasaguas, "Radio-interface physical layer," in *Long Term Evolution: 3GPP LTE Radio and Cellular Technology*, Boca Ratón (Florida, USA): Auerbach, 2009, ch. 3, pp. 49–98.
2. G. Fodor, A. Racz, N. Reider, A. Temesvary, G. Gomez, D. Morales-Jimenez, F. J. Lopez-Martinez, J. J. Sanchez, and J. T. Entrambasaguas, "3GPP Long Term Evolution," in *Get Certified: A Guide to Wireless Communication Engineering Technologies*, Boca Raton (Florida, USA): CRC Press, Auerbach, 2010, ch. 11, pp. 241–258.
3. M. C. Aguayo-Torres, J. T. Entrambasaguas, G. Gómez, D. Morales-Jimenez, and J. J. Sánchez, "Mobility support," in *Traffic and QoS management in wireless multimedia networks*, New York (USA): Springer, 2009, pp. 151–200.

International conference papers

1. J. W. Browning, N. Simmons, P. C. Sofotasios, S. L. Cotton, D. Morales-Jimenez, M. Matthaiou, and M. A. B. Abbasi, "A simulation framework for RIS communications," in *IEEE Vehicular Technology Conference (VTC2023-Spring)*, Florence (Italy), Jun. 2023.
2. F. J. Martin-Vega, G. Gomez, D. Morales-Jimenez, F. J. Lopez-Martinez, and M. C. Aguayo-Torres, "Joint distribution of distance and angle in rectangular finite wireless networks," in *18th International Symposium on Wireless Communication Systems (ISWCS'22)*, Hangzhou (China), Oct. 2022.
3. J. W. Browning, S. L. Cotton, P. C. Sofotasios, D. Morales-Jimenez, and M. D. Yacoub, "LoS, non-LoS and quasi-LoS signal propagation: A three state channel model," in *IEEE Vehicular Technology Conference (VTC2022-Spring)*, Helsinki (Finland), Jun. 2022.
4. J. W. Browning, S. L. Cotton, D. Morales-Jimenez, P. C. Sofotasios, and M. D. Yacoub, "A double-shadowed Rician fading model: A useful characterization," in *International Symposium on Wireless Personal Multimedia Communications (WPMC)*, Lisbon (Portugal), Nov. 2019.
5. N. Auguin, D. Morales-Jimenez, and M. R. McKay, "Robust linear discriminant analysis using Tyler's estimator: Asymptotic performance characterization," in *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP'19)*, Brighton (UK), May 2019.
6. A. A. Quadeer, D. Morales-Jimenez, and M. R. McKay, "A tailored sparse PCA method for finding vaccine targets against hepatitis C," in *50th Asilomar Conference on Signals, Systems and Computers*, Pacific Grove (USA), Nov. 2016.
7. N. Auguin, D. Morales-Jimenez, M. R. McKay, and R. Couillet, "Robust shrinkage M-estimators of large covariance matrices," in *IEEE Statistical Signal Processing Workshop (SSP) 2016*, Mallorca (Spain), Jun. 2016.

8. Q. Zhang, S. Jin, D. Morales-Jimenez, M. R. McKay, and H. Zhu, "Optimal pilot length for uplink massive MIMO systems with pilot reuse," in *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP'16)*, Shanghai (China), Mar. 2016.
9. D. Morales-Jimenez, R. Couillet, and M. R. McKay, "Large dimensional analysis of Maronna's M-estimator with outliers," in *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP'15)*, Brisbane (Australia), Apr. 2015.
10. R. Mungara, D. Morales-Jimenez, and A. Lozano, "System-level performance of interference alignment," in *IEEE Global Communications Conference (GLOBECOM)*, Austin (Texas, USA), Dec. 2014, pp. 1673–1678.
11. N. Lee, R. Heath, D. Morales-Jimenez, and A. Lozano, "Coordinated beamforming with dynamic clustering: A stochastic geometry approach," in *IEEE International Conference on Communications (ICC)*, Sydney (Australia), Jun. 2014, pp. 2165–2170.
12. N. Lee, R. W. Heath Jr., D. Morales-Jimenez, and A. Lozano, "Base station cooperation with dynamic clustering in super-dense Cloud-RAN," in *IEEE Globecom 2013 Workshops*, Atlanta (USA), Dec. 2013, pp. 784–788.
13. D. Morales-Jimenez and A. Lozano, "Ergodic sum-rate of proportional fair scheduling with multiple antennas," in *International Symposium on Information Theory (ISIT)*, Istanbul (Turkey), Jul. 2013, pp. 2124–2128.
14. D. Matolak, Q. Wu, J. Sanchez-Sanchez, D. Morales-Jimenez, and M. Aguayo-Torres, "Performance of LTE in vehicle-to-vehicle channels," in *4th IEEE International Symposium on Wireless Vehicular Communications (WIVEC 2011)*, San Francisco (USA), Sep. 2011, pp. 1–4.
15. R. Bujalance, G. Gómez, D. Morales-Jimenez, F. Blázquez-Casado, and J. Entrambasaguas, "Performance evaluation of cross-layer scheduling algorithms over MIMO-OFDM," in *5th IEEE International Conference on Broadband and Biomedical Communications (IB2Com)*, Málaga (Spain), Dec. 2010, pp. 1–5.
16. D. Morales-Jimenez, G. Gomez, J. F. Paris, and J. T. Entrambasaguas, "Joint adaptive modulation and MIMO transmission for non-ideal OFDMA cellular systems," in *IEEE GLOBECOM 2009 Workshops*, Hawaii (USA), Dec. 2009, pp. 1–5.
17. D. Morales-Jimenez, J. J. Sánchez, G. Gómez, M. C. Aguayo-Torres, and J. T. Entrambasaguas, "Impact of feedback channel delay on adaptive OFDMA systems," in *1st ERCIM Workshop on eMobility*, Coimbra (Portugal), May 2007, pp. 1–10.
18. J. J. Sánchez, D. Morales-Jimenez, G. Gómez, U. Fernández-Plazaola, E. Martos-Naya, and J. T. Entrambasaguas, "WM-SIM: A platform for design and simulation of wireless mobile systems," in *2nd ACM Workshop on Performance Monitoring and Measurement of Heterogeneous Wireless and Wired Networks*, Chania (Crete Island, Greece), Oct. 2007, pp. 124–127.
19. J. J. Sánchez, D. Morales-Jimenez, G. Gómez, and J. T. Entrambasaguas, "Physical layer performance of long term evolution cellular technology," in *16th IST Mobile and Wireless Communications Summit*, Budapest (Hungary), Jul. 2007, pp. 1–5.
20. J. J. Sánchez, G. Gómez, D. Morales-Jimenez, and J. T. Entrambasaguas, "Performance evaluation of OFDMA wireless systems using WM-SIM platform," in *4th ACM International Workshop on Mobility Management and Wireless Access (MobiWac)*, Torremolinos (Málaga), Oct. 2006, pp. 131–134.

Domestic conference papers

1. D. Morales-Jimenez, J. J. Sánchez, G. Gómez, and J. T. Entrambasaguas, "Análisis de rendimiento de sistemas MIMO-SDM OFDM," in *XXII Simposium Nacional de la Unión Científica Internacional de Radio (URSI 2007)*, Tenerife (Spain), Sep. 2007. (Spanish).
2. J. J. Sánchez, D. Morales-Jimenez, G. Gómez, and J. T. Entrambasaguas, "Impacto de la velocidad de los terminales en un sistema OFDMA adaptativo," in *XXII Simposium Nacional de la Unión Científica Internacional de Radio (URSI 2007)*, Tenerife (Spain), Sep. 2007. (Spanish).

Research Projects

Projects funded by public bodies (selected)

- "Practical and Efficient Communications through Large and Reconfigurable Intelligent Surfaces"
Period: 2021–2024; PI: D. Morales-Jimenez; Funding body: Spanish Ministry of Science and Innovation (PID2020-118139RB-I00); Budget: €88,330
- "Robust High-dimensional Filter Design with Applications to Multi-antenna Communications"

Period: 2016–2018; PI: D. Morales-Jimenez; Funding body: Spanish Ministry of Science and Innovation (TEC2015-74406-JIN); Budget: €168,500

- “Spectral Properties of High-Dimensional Correlation-Coefficient Matrices: Random Matrix Framework and Application”

Period: 2018–2021; PI: M. R. McKay; Funding Body: Hong Kong Research Grants Council (RGC 16202918); Budget: £80,000

- “Energy Efficiency in Secure Wireless Communications Systems for 5G”

Period: 2018–2020; PI: F. J. Lopez-Martinez; Funding Body: Spanish Ministry of Economy, Industry, and Competitiveness (MINECO); Budget: €112,530

- “In-Depth Performance Characterization of Integrated 5G-Enabling Technologies”

Period: 2016–2019; PI: M. R. McKay; Funding Body: Hong Kong Telecom Institute of Information Technology (HKTIIT16EG01); Budget: £110,000

- “Massive MIMO: A New Paradigm for More Efficient Wireless Cellular Networks”

Period: 2014–2016; PI: M. R. McKay; Funding body: Hong Kong Research Grants Council (Ref No. d01770); Budget: €180,000

- “Cooperative Management of Interference in Wireless Networks”

Period: 2013–2015; PI: A. Lozano; Funding body: Spanish Ministry of Science and Innovation (TEC2012-34642); Budget: €88,920

- “Foundations and Methodologies for Future Communication and Sensor Networks (COMONSSENS)”, www.comonsens.org

Period: 2009–2013; PI: J. Rodriguez Fonollosa; Funding body: Spanish Ministry of Science and Innovation (CONSOLIDER Ref. CSD2008-00010); Budget: €3,500,000

- “Cooperation in Wireless Networks with Multiple Antennas, Carriers, and Access Points”

Period: 2011–2013; PI: M. C. Aguayo-Torres; Funding body: Spanish Ministry of Science and Innovation (TEC2010-18451); Budget: €85,305

Contracts and agreements with private companies (selected)

- “Simulation Techniques for Wireless Communication Systems”

Period: 2008–2012; PI: J.T. Entrambasaguas; Funding company: AT4 Wireless; Budget: €267,000

- “TelMAX, Wideband Mobile Communication Systems”

Period: 2007–2010; PI: J.T. Entrambasaguas; Funding company: AT4 Wireless; Budget: €976,014

- “Testbeds for Wireless Communication Systems”

Period: 2006–2008; PI: J. T. Entrambasaguas; Funding company: Centro de Tecnología de las Comunicaciones (CETECOM); Budget: €50,000

- “MIMO Transmission Techniques”

Period: 2006–2007; PI: J. T. Entrambasaguas; Funding company: Centro de Tecnología de las Comunicaciones (CETECOM); Budget: €50,000

References

- **Prof. Angel Lozano**, Professor, Universitat Pompeu Fabra, Barcelona (Spain)

Email: angel.lozano@upf.edu

Phone: +34 93 542 2581

Address: Roc Boronat 138, 08018 Barcelona (Spain)

- **Prof. Matthew R. McKay**, Professor, University of Melbourne / HKUST
Email: matthew.mckay@unimelb.edu.au / m.mckay@ust.hk
Phone: +61 3 8344 4000
Address: Grattan Street, Parkville 3010 Victoria (Australia)
- **Prof. Kit Wong**, Professor, University College London (UK)
Email: k.wong@ee.ucl.ac.uk
Phone: +44 (0)20 7679 2895
Address: Torrington Place, WC1E 7JE London