Ana García Armada, Professor, Universidad Carlos III de Madrid, Spain

1   Brief bio

Ana García Armada received the Ph.D. degree in electrical engineering from the Polytechnical University of Madrid in February 1998. She is currently Professor at University Carlos III of Madrid (UC3M), Spain, where she has served in several management positions (Head of Signal Theory and Communications Department, Vice-dean of Electrical Engineering, Deputy Vice-Chancellor of International Relations, among others). She is leading the Communications Research Group at this university. She has been visiting scholar at Stanford University, Bell Labs and University of Southampton. She has participated (and coordinated most of them) in more than 30 national and 10 international research projects as well as 20 contracts with the industry, all of them related to wireless communications. She is the co-author of eight book chapters on wireless communications and signal processing. She has published more than 250 papers in international journals and conference proceedings and she holds four patents. She has contributed to international standards organizations, such as ITU and ETSI, she is a member of the expert group of NetworldEurope European Technology Platform and Vice-Chair of the advisory committee 5JAC of the ESA as expert appointed by Spain on 5G. She has served on the editorial boards of Physical Communication (2008-2017), IET Communications (2014-2017) and IEEE Communications Letters (2016-2019; Editor until Feb 2019, Senior Editor from Mar 2019, Exemplary Editor Award 2017 and 2018). She is serving on the editorial board of IEEE Transactions on Communications and IEEE Open Journal of the Communications Society since 2019 and ITU Journal on Future and Evolving Technologies since 2020. She has served on the TPC of more than 40 conferences and she has been member of the organizing committee of IEEE Globecom 2022, IEEE Globecom 2021 (General Chair), IEEE Globecom 2019, IEEE Vehicular Technology Conference (VTC) Fall 2018, Spring 2018 and 2019 and IEEE 5G Summit 2017, among others. She has been an officer since 2017 and is now the Vice-Chair of IEEE ComSoc Signal Processing and Computing for Communications Committee. She has been the Secretary of the IEEE ComSoc Women in Communications Engineering Standing Committee (2016-2017) and the Chair of this committee (2018-2019). She has been a Member at Large of the Board of Governors, Director of Online Content and member of several management committees in the IEEE Communications Society, where she is now the VP of Member and Global Activities. She has received the Young Researchers Excellence Award, the Award to Outstanding achievement in research, teaching and management and the Award to Best Practices in Teaching, all from University Carlos III of Madrid. She was awarded the third place Bell Labs Prize 2014 for shaping the future of information and communications technology. She received the Outstanding service award from the IEEE ComSoc Signal Processing and Communications Electronics technical committee in 2019 and the Outstanding service award from the IEEE ComSoc Women in Communications Engineering Standing Committee in 2020. She received the IEEE ComSoc/KICS Exemplary Global Service Award in 2022. Her main interests are multi-carrier and multi-antenna techniques and signal processing applied to wireless communications.

2 Research funding

She has participated (and coordinated most of them) in more than 30 national and 10 international research projects as well as 20 contracts with the industry, all of them related to wireless communications. The most relevant are summarized below.

2.1 Competitive research projects

- Visible light communications for an efficient digital transition (ViDiT)

Ministry of Economy and Competitiveness, Spain. TED2021-129869B-I00
Participants: Universidad Carlos III de Madrid
Duration, from: 1-12-2022 until: 30-11-2024
Role: Co-Principal Investigator

- Towards sustainable and flexible 3D radio networks (IRENE-EARTH)

Ministry of Economy and Competitiveness, Spain. PID2020-115323RB-C33
Participants: CTTC, Universidad Carlos III de Madrid, and Univ. Islas Baleares
Duration, from: 1-09-2021 until: 31-08-2024
Role: Co-Principal Investigator at UC3M

- Reconfigurable Intelligent Surface-Assisted VLC for battery-free IoT devices (RISA-VLC)

European Union, HORIZON-MSCA-2021-PF-01 101061853
Participants: Universidad Carlos III de Madrid, University of Virginia (USA)
Duration, from: 1/1/2023   until: 31/12/2025
Role: Co-Principal Investigator

- Network of Competence on Internet of Things (NEON)

European Union, Erasmus + KA2 - Cooperation for innovation and the exchange of good Practices. Capacity Building in Higher Education. Joint projects. 618942-EPP-1-2020-1-AT-EPPKA2-CBHE-JP
Participants: research centers of several countries, Universidad Carlos III de Madrid, coordinator: University of Klagenfurt, Austria
Duration, from: 15/1/2021   until: 14/1/2024
Role: Principal Investigator at UC3M

- Stochastic Modelling for Vehicular Communications over Fading Channels (SMVCOM)

European Union, H2020-MSCA-COFUND-2017-UE
Participants: Universidad Carlos III de Madrid
Duration, from: 1/2/2021   until: 31/1/2024
Role: Co-Principal Investigator

- New RAN TEchniques for 5G UltrA-dense Mobile networks (TeamUp5G)

European Union, MSCA-ITN-ETN 813391
Participants: 8 research centers of several countries, Universidad Carlos III de Madrid
Duration, from: 1/1/2019 until: 31/12/2022
Role: Principal Investigator in UC3M and global coordinator of the project

- Radio interface for hybrid terrestrial-satellite 5G and future networks (TERESA).

Ministry of Economy and Competitiveness, Spain. TEC2017-90093-C3-2-R.
Participants: CTTC, Universidad Carlos III de Madrid, and Univ. Islas Baleares.
Duration, from: 1/01/2018 until: 31/12/2020
Role: Co-Principal Investigator in UC3M

- System for virtual TELEportation of RESCUER for inspecting coal mine areas affected by catastrophic events (TELERESCUER)

European Union, RFCR-CT-2014-00002

Participants: 5 research centers of several countries, Universidad Carlos III de Madrid

Duration, from: 1/4/2015 until: 30/06/2017

Role: Principal Investigator in UC3M

- Textile high capacity device based on massive MIMO techniques

Explora Tecnología, Ministry of Economy and Competitiveness. TEC2014-61776-EXP

Participants: Universidad Carlos III de Madrid.

Duration, from: 1/09/2015   until: 31/08/2017

Role: Investigator

- Enabling technologies for Licensed and unlicensed Shared Access communications (ELISA). Sub-project "Massive and millimeter wave MIMO for licensed and unlicensed shared access"

Ministry of Economy and Competitiveness, Spain. TEC2014-59255-C3-3-R

Participants: CTTC, Universidad Carlos III de Madrid and Univ. Islas Baleares.

Duration, from: 1/01/2015 until: 31/12/2017

Role: Principal Investigator in UC3M

- Optimization of multiuser and multimedia services over LTE and LTE-Advanced (LTEXTREME)

Ministry of Economy and Competitiveness, Spain. IPT-2012-0525-430000

Participants: Alcatel-Lucent, Universidad Carlos III de Madrid, Universidad Politécnica de Madrid

Duration, from: 1/7/12   until: 31/12/15

Role: Principal Investigator in UC3M

- Foundations and Methodologies for Future Communication and Sensor Networks (COMONSENS)

Ministry of Economy and Competitiveness, Spain CONSOLIDER-INGENIO 2010, CSD2008-00010

Participants: Universidad Carlos III de Madrid, Universidad Politécnica de Cataluña (coordinator), UVEG, UDC, UVIGO, UC, UPF, CEIT, US, UPM

Duration, from: 1/10/08   until: 30/9/13

Role: Investigator

- CReating Ubiquitous Intelligent Sensing Environments (CRUISE)

European Union IST-4-027738

Participants: 31 research centres of several countries

Duration, from: 1/1/06   until: 31/12/07

Role: Principal Investigator in UC3M

- Network of Excellence in Wireless Applications and Technology (NEXWAY)

European Union, IST-2001-37944

Participants: research centres of several countries

Duration, from: 1/1/04 until: 1/1/05

Role: Principal Investigator in UC3M

2.2 Contracts with industry and administration

- Optimization of massive MIMO in milimeter waves for 5G radio access (AMATISTA)

Funding company/institution: Nokia, with project CDTI (IDI-20200861)

Duration, from: 31/07/2020 until: 18/08/2022.

Role: Principal Investigator

Iberaval Prize to al best ICT project 2021

- Tunnel 4.0

Funding company/institution: DETECTOR DE SEGUIMIENTO Y TRANSMISION, S.A. and LED 5V S.L.
Duration, from: 01/09/2019 until: 31/08/2021.
Role: Investigator

- UNderstanding and improVing the signal format, bEamforming and massIve MIMO for successfuL 5G deployment (UNVEIL-5G)

Funding company/institution: Vodafone
Duration, from: 5/03/2019 until: 4/03/2020.
Role: Principal Investigator

- Optimization of the performance of small cells in 5G NR (OPALL5G)

Funding company/institution: Nokia
Duration, from: 12/09/2018 until: 31/12/2019.
Role: Principal Investigator

- Non-coherent transmission in Massive MIMO research cooperation project

Funding company/institution: Huawei
Duration, from: 25/10/2018 until: 24/10/2019.
Role: Principal Investigator

- Design of a demodulator for wireless access with visible light of public luminaries

Funding company/institution: DLED SOLUCIONES S.L.
Duration, from: 7/05/2015 until: 6/01/2016.
Role: Investigator

- Development of algorithms for channel estimation, synchronization and AGC for WLAN based on OFDM

Funding company/institution: Telefónica Investigación y Desarrollo.
Duration, from: July 2002   until: August 2003
Role: Principal Investigato

- Analysis of New Multipath Mitigation Techniques for Navigation Receivers

Funding company/institution: European Space Agency ESA-ESTEC, ESTEC contract num. 15534/01/NL/LvH
Duration, from: 1 October 2001   until: 31 July 2002
Role: Principal Investigator

3   Teaching

More than twenty years teaching undergraduate and graduate programs in Telecommunications.

12 graduated PhD students, four of them with best doctorate award, five of them with international mention.

4   Publication record
4.1 Journal papers
[1] Máximo Morales Céspedes, Borja Genovés Guzmán, Víctor P Gil Jiménez; Ana García Armada, "Aligning the Light for Vehicular Visible Light Communications", IEEE Vehicular Technology Magazine, Early Access

[2] Javier Lorca Hernando; Ana García Armada, "Frequency-Modulated OFDM: a new Waveform for High-Mobility Wireless Communications", IEEE Transactions on Communications,Vol. 71, no.1, pp.1540 -552, Jan 2023.

[3] Kun Chen-Hu; M. Julia Fernández-Getino García; Andrea M. Tonello; Ana García Armada, "Phase-domain Injected Training for Channel Estimation in Constant Envelope OFDM", IEEE Transactions on Wireless Communications, Early Access

[4] Farinaz Kooshki; Ana García Armada, Md. Munjure Mowla, Adam Flizikowski, Slawomir Pietrzyk, "Energy-Efficient Sleep Mode Schemes for Cell-less RAN in 5G and beyond 5G Networks", IEEE Access, Vol. 11, pp.1432 -1444, Dec 2022.

[5] Javier Otero Martínez, Javier Rodríguez Rodríguez, Yuanjun Shen, Kin-Fai Tong, Kai-Kit Wong, Ana García Armada, "Towards Liquid Reconfigurable Antenna Arrays for Wireless Communications", IEEE Communications Magazine ,Vol. 60, no. 12, pp.145 -151, Dec 2022.

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4.2 Recent conference papers

[C1]   Alberto Alvarez Polegre, Ana García Armada, "User-Centric Massive MIMO Systems with Hardening-based Clusterization", 24th International ITG Workshop on Smart Antennas (WSA), Hamburg, Germany, February 2020.

[C2]   Víctor Monzón, Ana García Armada, "Performance and Complexity Tradeoffs of Several Constellations for Non Coherent Massive MIMO", The 22nd International Symposium on Wireless Personal Multimedia Communications (WPMC). Lisbon, Portugal, November 2019.

[C3]   Ahmed Al-habob, Octavia A. Dobre, Ana García Armada, "Sequential Task Scheduling for Mobile Edge Computing Using Genetic Algorithm", IEEE GLOBECOM 2019 Workshop on Advanced mobile edge/fog computing for 5G mobile networks and beyond, Waikoloa, Hawaii, December 2019.

[C4]   Muhammad Umar Khan, Mostafa Azizi, Ana García Armada, and J Joaquin Escudero, "Heuristic for Network Planning based on 5G Services", International Conference on Smart Information and Communication Technologies (SmartICT'19), Saidia, Morocco, September 2019.

[C5]   Alberto Alvarez Polegre, Raquel Pérez Leal, José Antonio García García, Ana García Armada, " Optimization of the Radio Access to Provide Vehicular Communications Based on Drive Tests", 27th European Signal Processing Conference (EUSIPCO), Coruña, Spain, September 2019.

[C6]   Máximo Morales-Céspedes, Ahmad Adnan Quidan, Ana García Armada, "Experimental Evaluation of the Reconfigurable Photodetector for Blind Interference Alignment in Visible Light Communications", 27th European Signal Processing Conference (EUSIPCO), Coruña, Spain, September 2019.

[C7]   Máximo Morales Céspedes, Ana García Armada, "Characterization of the Visible Light Communications during the Construction of Tunnels", International Symposium on Wireless Communication Systems (ISWCS), Oulu, Finland, August 2019.

[C8]   Alberto Alvarez Polegre, Raquel Pérez Leal, José Antonio García García, Ana García Armada, "Drive Tests-based Evaluation of Macroscopic Pathloss Models for Mobile Networks", European Conference on Networks and Communications (EUCNC), Valencia, Spain, June 2019.

[C9]   Kun Chen Hu, Dirk Slock, Ana García Armada, "Low-Rank Channel Estimation for mm-Wave Multiple Antenna Systems using Joint Spatio-Temporal Covariance Matrix", IEEE International Conference on Communications (ICC) - Workshop on Millimeter-Wave Communications for 5G and B5G, Shanghai, China, May 2019.

[C10]   Kun Chen Hu, Ana García Armada, "Non-Coherent Multiuser Massive MIMO-OFDM with Differential Modulation", IEEE International Conference on Communications (ICC), Shanghai, China. May   2019.

[C11]   Kun Chen Hu, Ana García Armada, "Low-Complexity Computation of Zero-Forcing Equalizers for Massive MIMO-OFDM", IEEE Vehicular Technology Conference Spring, Kuala Lumpur, Malasya, April 2019.

[C12]   Felip Riera-Palou, Guillem Femenias, Ana García Armada, Ana Pérez-Neira, "Clustered Cell-Free Massive MIMO", IEEE GLOBECOM 2018 Workshops: Cloudified Architectures for 5G and beyond Systems , Abu Dhabi, UAE, December 2018.

[C13]   Aaron Garrido Martín, Raquel Pérez Leal, Ana García Armada, Alfonso Fernández Durán, "NBIoT Random Access Procedure: System Simulation and Performance", Global Information Infrastructure and Networking Symposium (GIIS 2018), Thessaloniki, Greece, October 2018.

[C14]   Kun Chen-Hu, Florian Kaltenberger, Ana Garcia Armada, "Implementation and measurement of Power Adapted-OFDM using OpenAirInterface", 19th IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC), Kalamata, Greece, June 2018.

[C15]   Alejandro de la Fuente, Guillem Femenias, Felip Riera-Palou, Ana García-Armada, "Resource allocation algorithms for multicast OFDM scenarios based on subband-CQI feedback", IEEE International Symposium on Broadband Multimedia Systems and Broadcasting, Valencia, Spain, June 2018.

[C16]   Kun Chen-Hu, Ana García Armada, "Low-Complexity Zero-Forcing Equalization for Massive MIMO-OFDM", IEEE Communication Theory Workshop , Miramar Beach, USA, May 2018.

[C17]   Máximo Morales Céspedes, Ana García Armada, "Variable orientation photodiodes to approach capacity in MIMO VLC", IEEE Communication Theory Workshop , Miramar Beach, USA, May 2018.

[C18]   Ahmad Adnan Quidan, Máximo Morales-Céspedes, Ana García Armada, "Aligning the light based on the network topology for Visible Light Communications", IEEE ICC 2018 Workshop - The 4th Workshop on Optical Wireless Communications, Kansas City, USA, May 2018.

[C19]   Kun Chen-Hu, Raquel Pérez Leal, Ana García Armada, "Reducing the interference by adapting the power of OFDM for mMTC", IEEE Vehicular Technology Conference, Porto, Portugal, June 2018.

[C20]   Ahmad Adnan Qidan, Maximo Morales-Cespedes, Ana García Armada, "The role of WiFi in LiFi hybrid networks based on Blind Interference Alignment", IEEE Vehicular Technology Conference, Porto, Portugal, June 2018.

[C21]   Maximo Morales-Cespedes, Ana García Armada, "On the Optimality of Multiple Photodiode Receivers Using Precoding Schemes for Visible Light Communications", Global LiFi Congress, Paris, France, February 2018.

[C22]   Borja Genovés Guzmán, Tomás Martínez Cortés, Ángel Rodríguez López and Ana García Armada, " Design of a Communication, Vision and Sensory System for a Rescuer Robot in Coal Mine Areas", International Conference on Wireless Networks and Mobile Communications (WINCOM'17), Rabat, Morocco, November 2017.

[C23]   Norbert Ludant, Nicola Bui, Ana García Armada, Joerg Widmer, " Data-Driven Performance Evaluation of Carrier Aggregation in LTE-Advanced", IEEE 28th Annual International Symposium on Personal, Indoor, and Mobile Radio Communications (PIMRC), Montreal, Canada, October 2017.

[C24]   Joan Bas; Marius Caus; Ana Pérez; Andrea Modenini; Johannes Ebert; Ana Armada, "Mutual Information Analysis of Frequency Packing Schemes in Multi-Beam Satellite Systems", 35th AIAA International Communications Satellite Systems Conference (ICSSC), Tiieste, Italy, October 2017.

[C25]   Roberto Corvaja, Ana García Armada, Miguel A. Vázquez, Ana Pérez Neira, , "Design of Pre-coding and Combining in Hybrid Analog-Digital Massive MIMO with Phase Noise," 25th European Signal Processing Conference (EUSIPCO), Kos Island, Greece, September 2017.

[C26]   Víctor Monzón, Ana García Armada, "Analysis of the Performance of a Non-Coherent Large Scale SIMO System Based on M-DPSK Under Rician Fading," 25th European Signal Processing Conference (EUSIPCO), Kos Island, Greece, September 2017.

[C27]   Miguel A. Vázquez, Ana Pérez Neira, Roberto Corvaja, Ana García Armada, M. Angel Lagunas, "Scheduling and Precoding in Hybrid Analog-Digital Multiantenna Spectrum Sharing Systems," 25th European Signal Processing Conference (EUSIPCO), Kos Island, Greece, September 2017.

[C28]   Kun Chen-Hu, Juan Carlos Estrada Jiménez, M. Julia Fernández-Gentino Garcia, Ana Garcia Armada, "Superimposed Training for Channel Estimation in FBMC-OQAM, IEEE Vehicular Technology Conference (VTC-Fall 2017), Toronto, Canada, September 2017.

[C29]   Estefanía Crespo Bardera, Matilde Sánchez Fernández, Ana Garcia Armada, Aaron Garrido Martín, Alfonso Fernández Durán, "Analysis of a LTE-based Textile Massive MIMO Proposal for Public Safety Networks", IEEE Vehicular Technology Conference (VTC-Fall 2017), Toronto, Canada, September 2017.

[C30]   Victor Monzón, Ana Garcia Armada, Mohammed El-Hajjar, Lajos Hanzo, "Performance of a Non-Coherent Massive SIMO M-DPSK System", IEEE Vehicular Technology Conference (VTC-Fall 2017), Toronto, Canada, September 2017.

[C31]   Alejandro Borrajo, Raquel Pérez Leal, Ana Garcia Armada, "Random Access Procedure based on an Adaptive Prioritization Method for Integration of MTC in Mobile Networks", International Symposium on Ubiquitous Networking (UNet'17), Casablanca, Morocco, May 2017.

[C32]   M. Morales Céspedes, J. Plata-Chaves, A. Garcia Armada, Marc Moonen, Luc Vadendorpe, "Can the use of reconfigurable antennas overcome the CSI bottleneck for FDD Massive MIMO", IEEE Wireless Communications and Networking Conference (WCNC), San Francisco, USA, March 2017.

[C33]   Petr Novák, Jan Babjak, Tomas Kot, Zdenko Bobovský, Petr Olivka, Wojciech Moczulski, Anna Timofiejczuk, Marek Adamczyk, Borja Genovés Guzmán, Ana Garcia Armada, Ángel

Rodriguez, "TELERESCUER - reconnaissance mobile robot for underground coal mines", Coal Operators Conference, Wollongong, Australia, February 2017.

[C34]   A. Garcia Armada, "Non-coherent Large Scale MIMO. massive but feasible", IEEE 5G Summit, Lisbon, Portugal, January 2017.

[C35]   Alejandro de la Fuente, Felip Riera-Palou, Guillem Femenias, Ana Garcia Armada, "Enhanced Scheduling and Resource Allocation in Multicast OFDMA Systems", Summer School on Spectrum Aggregation and Sharing for 5G Networks, Nice, France, October 2016.

[C36]   B. Genovés Guzmán, M. Adamczyk, A. Timofiejczuk and A. Garcia Armada, "Design of a Sensory and Vision System for a Rescuer Robot in Coal Mine Areas", 6th International Congress on Technical Diagnostics and 5th International Conference on Condition Monitoring of Machinery in Non-Stationary Operations, Gliwice, Poland, September 2016.

[C37]   Kun Chen Hu, Ana Garcia Armada, "SINR Analysis of OFDM and f-OFDM for Machine Type Communications", IEEE 27th Annual IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC), Valencia, Spain, September 2016.

[C38]   Kun Chen Hu, Ana Garcia Armada, Matilde Sánchez Fernández, Antonio Royo, "Prototyping and Measurements for a LiFi System", IEEE 9th Sensor Array and Multichannel Signal Processing Workshop (SAM 2016), Rio de Janeiro, Brasil, July 2016.

[C39]   Alejandro de la Fuente, Carlos M. Lentisco, Luis Bellido, Raquel Pérez Leal, Ana Garcia Armada, Encarna Pastor, Alejandro Garcia Bolívar, "End to End Measurements of Multimedia Streaming Over LTE", European Conference on Networks and Communications (EuCNC), Athens, Greece, June 2016.

[C40]   M. Morales Céspedes, J. Plata-Chaves, A. Garcia Armada, Luc Vadendorpe, "A Blind Interference Alignment scheme for practical *channels*", IEEE International Conference on Communications (ICC), Kuala Lumpur, Malaysia, May 2016.

[C41]   Víctor Monzón Baeza, Juan José Garcia Fernández and Ana Garcia Armada, "Bitloaded Modified Enhanced Subcarrier Index Modulation OFDM for Visible Light Communications", 2nd International Conference on Wireless Communication Systems and Networks (MIC-Wireless 2015), Barcelona, Spain, August 2015.

[C42]   Alejandro de la Fuente, Carlos M. Lentisco, Luis Bellido, Raquel Perez Leal, Encarna Pastor, Ana Garcia Armada, "Analysis of the impact of FEC techniques on a multicast video streaming service over LTE", European Conference on Networks and Communications (EuCNC), Paris, France, January 2015.

[C43]   Víctor Monzón Baeza, Matilde Sánchez-Fernández, Ana Garcia Armada, Antonio Royo, "Testbed for a LiFi System integrated in Streetlights", European Conference on Networks and Communications (EuCNC), Paris, France, January 2015.

[C44]   Ana Garcia Armada, Lajos Hanzo, "A Non-Coherent Multi-User Large Scale SIMO System Relying on M-ary DPSK", IEEE International Conference on Communications (ICC), London, UK, June 2015.

[C45]   Máximo Morales Céspedes, Matilde Sánchez Fernández, Ana Garcia Armada, "Experimental Evaluation of Blind Interference Alignment", Vehicular Technology Conference, VTC2015-Spring, Glasgow, Scotland, May 2015.

[C46]   M. Morales Céspedes, J. Plata-Chaves, D. Toumpakaris, A. Garcia Armada, "Cognitive Blind Interference Alignment for Macro-Femto Cellular Networks", IEEE Globecom, Austin, USA, December 2014.

[C47]   Carlos M. Lentisco, Luis Bellido, Alejandro de la Fuente, Encarna Pastor, Raquel Perez Leal, Ana Garcia Armada, "A model to evaluate MBSFN and AL-FEC techniques in a multicast video streaming service, IEEE International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob), Lamarca, Cyprus, October 2014.

[C48]   Juan José Garcia Fernández, Máximo Morales Céspedes, Matilde Sánchez Fernández, Ana Garcia Armada, "Improved Interference Aware Precoding for Cellular Network-MIMO Systems", European Signal Processing Conference (EUSIPCO), Lisbon, Portugal, September 2014.

[C49]   Ana Garcia Armada, Varghese Antony Thomas, Mohammed El-Hajjar, Lajos Hanzo, "Radio-over-Fiber Aided Base Station Coordination for OFDM", IEEE Vehicular Technology Conference VTC2014-Fall, Vancouver, Canada, September 2014.

[C50]   Juan José Garcia Fernández, Ana Garcia Armada, "Characterization of a Simple Threshold to Fight Out of Cluster Interference", European Conference on Networks and Communications (EuCNC), Bologna, Italy, January 2014.

[C51]   Nikolaos Bartzoudis , Oriol Font-Bach, Miquel Payaró, Antonio Pascual-Iserte, Javier Rubio, Juan José Garcia Fernández, Ana Garcia Armada, "Energy Profiling of FPGA-based PHY-layer Building Blocks Encountered in Modern Wireless Communication Systems", IEEE Sensor Array and Multichannel Signal Processing Workshop (SAM), A Coruña, Spain, January 2014.

[C52]   Máximo Morales Céspedes, Jorge Plata-Chaves, Dimitris Toumpakaris, Ana Garcia Armada, "On the Choice of Blind Interference Alignment Strategy for Cellular Systems with Data Sharing", IEEE International Conference on Communications (ICC), Sidney, Australia, June 2014.

[C53]   Alejandro de la Fuente, Ana Garcia Armada, Raquel Pérez Leal, "Joint Multicast/Unicast Scheduling with Dynamic Optimization for LTE Multicast Service", European Wireless, Barcelona, Spain, May 2014.

[C54]   Juan José Garcia Fernández, Ana Garcia Armada, Javier Rubio, Antonio Pascual-Iserte, Oriol Font-Bach, Nikolaos Bartzoudis, "Adaptive Block Diagonalization and User Scheduling With Out of Cluster Interference", European Wireless, Barcelona, Spain, May 2014.

[C55]   Javier Rubio, Antonio Pascual-Iserte, Juan José Garcia Fernández, Ana Garcia Armada, Oriol Font-Bach, Nikolaos Bartzoudis, "Asymptotic Analysis of Multiuser-MIMO Networks with Battery-Constrained Receivers", European Wireless, Barcelona, Spain, May 2014.

[C56]   Máximo Morales Céspedes, Ana Garcia Armada, Jesús Gutiérrez Terán, "Achievable throughput with Block Diagonalization on OFDM indoor demonstrator", European Signal Processing Conference (EUSIPCO), Marrakech, Morocco, September 2013.

[C57]   Alejandro de la Fuente Iglesias, Raquel Pérez Leal, Ana Garcia Armada, "Performance Analysis of eMBMS in LTE Dynamic MBSFN Areas", Opnetwork, Washington DC, USA, August 2013.

[C58]   Máximo Morales Céspedes, Jorge Plata Chaves, Dimitris Toumpakaris, Ana Garcia Armada, "Exploiting Blind Interference Alignment in Cellular Systems", IEEE Communication Theory Workshop (CTW), Phuket, Thailand, June 2013.

[C59]   Felipe Llinares-López, Matilde Sánchez-Fernández, Emilio Parrado-Hernandez, Ana Garcia Armada, "Interference-aware MIMO precoder design with realistic power constraints", IEEE ICC'13 - Workshop Beyond LTE-A, Budapest, Hungary, June 2013.

[C60]   Roberto Corvaja, J. José Garcia Fernández, Ana Garcia Armada, "Partial Coordination in Clustered Base Station MIMO Transmission", IEEE Wireless Communications and Networking Conference (WCNC). Shanghai, China, April 2013.

[C61]   M. Luz Pablo González, Ana Garcia Armada, Matilde Sánchez Fernández, Antonio Pascual Iserte, Miquel Payaró, "Performance of Waterfilling-based Schemes for Interference Cancellation in 4G networks", International Workshop on Cognitive Information Processing (CIP), Baiona, Spain, May 2012.

[C62]   Máximo Morales Céspedes, Ana Garcia Armada, "Green strategies for Block Diagonalization-Network MIMO with Fairness", Workshop on Small Cell Cooperative Communications, Lyon, France, May 2012.

[C63]   Li Hong, Ana Garcia Armada and Angel Lozano , "Bit Loading for MIMO with Statistical Channel Information at the Transmitter and MMSE Receivers", IEEE Wireless Communications and Networking Conference (WCNC). Paris, France, April 2012.

[C64]   Máximo Morales Céspedes, Ana Garcia Armada, "Power minimization in Coordinated Base Station Transmission using Block Diagonalization", International OFDM Workshop. Hamburg, Germany, September 2011.

[C65]   Josep Vidal, Adrián Agustín, Sandra Lagén, Eduard Valera, Olga Muñoz, Ana Garcia Armada, Matilde Sánchez Fernández, "Networked-MIMO Backhauling for QoS-Constrained Relay Transmission", IEEE International Conference on Acoustics, Speech and Signal Processing ICASSP 2011, Prague, Czech Republic, May 2011.

[C66]   Máximo Morales Céspedes, Ana Garcia Armada, "Zero-Forcing Coordinated Base Station Transmission for Femtocell Systems", IEEE VTC2011-Spring International Workshop on Broadband Femtocell Technologies, Budapest, Hungary, May 2011.

[C67]   Ana Garcia Armada, Roberto Corvaja, Matilde Sánchez-Fernández, Ana Santos Rodriguez, "MMSE Precoding for Downlink Coordinated Base Station Transmission", IEEE Vehicular Technology Conference VTC2011-Spring, Budapest, Hungary, May 2011.

[C68]   Miquel Payaró, Antonio Pascual-Iserte, Ana Garcia Armada, Matilde Sánchez-Fernández, "Resource Allocation in Multi-Antenna MAC Networks. FBMC vs OFDM", IEEE Vehicular Technology Conference VTC2011-Spring, Budapest, Hungary, May 2011.

4.3 Patents

[P1]   Ana García Armada, Matilde Sánchez Fernández, Roberto Corvaja, "Joint transmission technique," December 2010 (WO2011ES000344), Universidad Carlos III de Madrid.

[P2]   Ana García Armada, M. Luz de Pablo González, Matilde Sánchez Fernández, Roberto Corvaja, Ignacio Berberana Fernández Murias. "Method to optimize the power assignment to user data streams transmitted from several coordinated base stations," July 2011 (WO2013007616), Telefónica S.A.

[P3]   Ana García Armada, Víctor P. Gil Jiménez, Nieves Sidney González Pizarro, Francisco Hernando Gallego, " Method and device for inhibition of mobile telephony signals," September 2012, (WO2014041225), Universidad Carlos III de Madrid.

[P4]   Matilde Sánchez Fernández, Ana García Armada, Eva Rajo Iglesias, "Method and system for increasing the capacity of the uplink between a user terminal and a base station," December 2014 (P201431806), Universidad Carlos III de Madrid.

[P5]   Máximo Morales Céspedes, Ana García Armada, Luc Vandendorpe, "Method, system and device for the reception of optical multiuser transmission", November 2017 (P201731342), Universidad Carlos III de Madrid and Université Catholique de Louvain.

[P6]   Manuel J López Morales, Kun Chen Hu, Ana García Armada. "High performance constellations in a non-coherent multi-user system", September 2021, (P202130905), Universidad Carlos III de Madrid.

5 Awards and recognitions

- Young Researchers Excellence Award, University Carlos III of Madrid.
- Award to Outstanding achievement in research, teaching and management and, University Carlos III of Madrid.
- Award to Best Practices in Teaching, University Carlos III of Madrid.
- Third place Bell Labs Prize for shaping the future of information and communications technology in 2014.
- Outstanding service award from the IEEE ComSoc Signal Processing and Communications Electronics (SPCE) technical committee in 2019.
- Outstanding Service Award from the Women in Communications Engineering (WICE) standing committee, 2020.
- IEEE ComSoc/KICS Exemplary Global Service Award, 2022.

6 Society services

6.1 Research societies and boards

- Vice President Member and Global Activities, IEEE ComSoc. 2022-23.
- Director of Online Content, IEEE Communications Society: 2020-21.
- Member at Large of the Board of Governors of IEEE Communications Society: 2020-21.
- Member of the expert group of the European 5G PPP.
- Member of the advisory committee *5JAC* of the *ESA* as expert appointed by Spain on 5G.
- Newsletter Editor of the IEEE ComSoc Signal Processing and Consumer Electronics Committee (2017-2018).
- Secretary of the IEEE ComSoc Signal Processing and Consumer Electronics Committee (since 2019).
- Secretary of the IEEE ComSoc Women in Communications Engineering Standing Committee (2016-2017).
- Chair of the IEEE ComSoc Women in Communications Engineering Standing Committee (2018-2019).

6.2 Editorial activities

- Editor of Physical Communication (2008-2017)
- Editor of IET Communications (2014-2017)
- Editor of IEEE Communications Letters, 2016-2019 (Editor until Feb 2019, Senior Editor from Mar 2019, Exemplary Editor Award 2017 and 2018)
- Editor of IEEE Open Journal of the Communications Society since 2019
- Editor of IEEE Transactions on Communications since 2019.
- ITU Journal on Future and Evolving Technologies since 2020.

6.3 Organization of conferences and workshops

Ana Garcia Armada has served on the TPC of more than 40 conferences.

She has served/is serving in the organizing committee of the following conferences and workshops.

- IEEE Globecom 2022 (Rio de Janeiro), Patronage Chair
- IEEE Globecom 2021 (Madrid, December 2021), General Chair
- IEEE WICE Workshop on Communications and Professional Development 2019 (Hawaii, December 2019), General Chair
- IEEE Globecom 2019 (Hawaii, December 2019), "Signal Processing for Communications" Symposium Chair
- IEEE Vehicular Technology Conference Spring 2019 (Malasia, April 2019), "Multiple Antenna Systems and Cooperative Communications" Track Chair.
- The 22nd International Symposium on Wireless Personal Multimedia Communications (Lisbon, November 2019), Technical Program Co-Chair
- International Smart Cities Conference (ISC2) 2018 (Kansas City, USA, September 2018), Publicity Chair
- Joint N2Women and WICE Workshop 2018 (Kansas City, USA, May 2018), General Co-chair
- IEEE Vehicular Technology Conference Fall 2018 (Chicago, August 2018), "Signal Transmission and Reception" Track Co-Chair.
- IEEE Vehicular Technology Conference Spring 2018 (Porto, June 2018), "Multiple Antenna Systems and Cooperative Communications" Track Chair.
- IEEE 5G Summit (Lisbon, January 2017), Steering Committee.
- IEEE Third Women´s Workshop on Communications and Signal Processing (Washington DC, Diciembre 2016), Organzing Committee.
- The Third International Symposium on Ubiquitous Networking (UNET) 2017, TPC Chair
- European Conference on Networks and Communications (EuCNC) 2015, Track Co-Chair for the Wireless Communications Track
- International Conference on Mobile Lightweight Wireless Systems (MOBILIGHT) 2010: Tutorials Chair.