

PERSONAL INFORMATION

Family name, First name: Abadal, Sergi

ORCID: 0000-0003-0941-0260 | Researcher ID: L-6004-2014

Date of birth: March 31st, 1986

Nationality: Spanish

URL for web site: <https://www.sergiabadal.com>



- EDUCATION**

- 2016 PhD in Computer Architecture (honors)
 Department of Computer Architecture, Universitat Politècnica de Catalunya (UPC), Spain
 Supervisors: Prof. Albert Cabellos-Aparicio and Prof. Eduard Alarcón
- 2011 MSc in Information and Communication Technologies (honors)
 School of Telecommunications Engineering, UPC, Spain

- CURRENT POSITION(S)**

- 2022 – Principal Investigator, ERC Starting Grant WINC (www.winc-project.eu)
 Department of Computer Architecture, UPC, Spain
- 2019 – Project Coordinator and Principal Investigator, H2020 Project WiPLASH (www.wiplash.eu)
 Department of Computer Architecture, UPC, Spain

- PREVIOUS POSITIONS**

- 2017 – 2019 Director of Research (coordination of technical activities and fundraising)
 NaNoNetworking Center in Catalunya, UPC, Spain
- 2018 Visiting Researcher
 Foundation of Research and Technology – Hellas, Greece
- 2016 – 2017 Postdoc Researcher
 NaNoNetworking Center in Catalunya, UPC, Spain
- 2015 Visiting Researcher
 University of Illinois at Urbana-Champaign, USA

- FELLOWSHIPS AND AWARDS**

- 2022 **Outstanding Milestone Award**, from ACM NanoCom 2022 steering committee, awarded to a researcher active in the field of nanocommunications. Awarded once per year.
- 2021 **NEC Fellowship**, Research Fellowship Programme of NEC Labs Europe.
- 2021 **EIC National Champion**, appointed by the European Innovation Council to promote the Horizon Europe program in Spain (less than 100 people have been selected across Europe).
- 2019 **Editor of the Year Award** from the Nano Communication Networks Journal (Elsevier), awarded to the best performing editor in a natural year. Awarded once per year.
- 2019 **Young Investigator Award** from the Nano Communication Networks Journal (Elsevier), awarded to a researcher active in the field of Nanoscale Communications and Networking. Awarded once per year.
- 2017 **Dissertation Award from UPC**, awarded to the best PhD theses of 2016.
- 2013 – 2015 **Intel Fellowship**, Doctoral Student Honor Programme of Intel Labs (12 awarded per year).
- 2012 – 2013 **Full PhD Scholarship**, Department of Computer Architecture, UPC, Spain.
- 2012 **Accenture award** to the best academic record in the MSc in Information and Communication Technologies at UPC, Spain.
- 2010 **Vodafone Foundation Fellowship**, awarded to outstanding students at UPC to conduct graduate research in the United States.

- SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS**

- 2017 – 2021 3 PostDoc / 7 PhD / 17 MSc / 33 BSc (includes on-going)
 Department of Computer Architecture, UPC, Spain

• TEACHING ACTIVITIES

- 2018 – Lecturer and Lab Instructor – Object-oriented programming, UPC, Spain
- 2018 – Coordinator and Lecturer – Networks and on-line gaming, Centre de la Imatge i la Tecnologia Multimèdia, UPC, Spain

• ORGANISATION OF SCIENTIFIC MEETINGS

- 2022 General Chair, IEEE/ACM NOCS Symposium, Global Virtual Event (80+ part.)
- 2022 Vice-General Chair, ACM NANOCOM Conference, Barcelona, Spain (60+ part.)
- 2022 General Chair, IEEE TeraCom Workshop at Globecom'22, Rio de Janeiro, Brazil (50+ part.)
- 2021 Program Chair, IEEE/ACM NOCS Symposium, Global Virtual Event (50+ participants)
- 2021 Program Chair, ACM NANOCOM Conference, Catania, Italy (50+ participants)
- 2021 Workshop Chair, ACM Computing Frontiers, Global Virtual Event (expected 100+ part.)
- 2020 Co-Founder/General Chair, ACM NanoCoCoA Workshop, Yokohama, Japan (20+ part.)
- 2020 General Chair, IEEE/ACM NoCARC Workshop, Athens, Greece (90+ participants)
- 2020 Publicity Chair, IEEE/ACM NOCS Symposium, Hamburg, Germany (30+ participants)
- 2020 Finance Chair, ACM NANOCOM Conference, College Park, MD, USA (40 participants)
- 2019 Program Chair, IEEE/ACM NoCARC Workshop, Columbus, USA (50+ participants)
- 2019 Publicity Chair, ACM NANOCOM Conference, Dublin, Ireland (80+ participants)
- 2019 Program Chair, ACM AISTECS Workshop, Valencia, Spain (30+ participants)

• EDITORIAL AND REVIEWING ACTIVITIES

- 2023 Guest Editor, IEEE Journal on Selected Areas in Communications, IEEE, USA.
- 2022 Guest Editor, IEEE Transactions on Nanotechnology, IEEE, USA
- 2022 Internal Evaluator and Mock Interviewer, ERC StG and CoG, Spanish Government**
- 2022 Member of Evaluation Panel, CHIST-ERA 2021 (NOEMS call), European Commission**
- 2021 External Prize Evaluator, Chinese Academy of Sciences**
- 2021 External Grant Evaluator, Qatar National Research Fund**
- 2021 Guest Editor, Journal of Low Power Electronics and Applications, MDPI, Switzerland
- 2020 External Grant Evaluator, Czech Science Foundation, Czech Republic**
- 2020 Guest Editor, IEEE J. on Emerging and Selected Topics in Circuits and Systems, IEEE, USA
- 2019 – Associate Editor, Frontiers in Communications and Networks, Frontiers, Switzerland
- 2018 – Associate Editor, Nano Communication Networks Journal, Elsevier, Netherlands
- 2015 – Reviewer for Advanced Materials (Wiley), Advanced Science (Wiley), Scientific Reports (Nature), IEEE J. on Selected Areas in Communications, IEEE Comms Magazine, IEEE T. on Communications, IEEE Communications Letters, IEEE T. on Antennas and Propagation, IEEE Internet of Things Journal, IEEE T. on Nanotechnology, IEEE T. on Quantum Engineering, IEEE T. on Vehicular Technology, IEEE T. on Computer-Aided Design of Integrated Circuits and Systems, IEEE T. on Very Large Scale Integration, IEEE T. on Circuits and Systems I and II, IEEE T. on Computers, IEEE T. on Multi-Scale Computing Systems, IEEE T. on Molecular, Biological, and Multi-Scale Communications, IEEE/OSA Journal of Lightwave Technology, IEEE Access, Computer Networks (Elsevier).
- 2015 – Reviewer as member of the TPC of ACM MobiCom (2022), IEEE VTC-Fall/VTC-Spring (2018-21), IEEE GLOBECOM (2019-23), IEEE ICC (2022-23), IEEE ISCAS (2019-2023), IEEE MCSoc (2018-21), IEEE/ACM NOCS (2020-22), IEEE SECON 2019, IEEE/ACM NOCARC (2016-18), various THz workshops at IEEE ICC, IEEE GLOBECOM, IEEE INFOCOM (2018-20), IEEE GSMM (2016-17).

• MEMBERSHIPS OF SCIENTIFIC SOCIETIES

- 2020 – Member, European Network on High-performance Embedded Architecture and Compilation (HiPEAC). Requires acceptance from the admissions panel.
- 2016 – Professional Member, Institute of Electrical and Electronics Engineers (IEEE)
- 2016 – Professional Member, Association of Computing Machinery (ACM)

RESEARCH ACTIVITY RECORD

- PI in 4 research national and international projects with a total budget of over 4.6M€ (1.95 M€ for his host institution).
- **PI of WINC** (www.winc-project.eu), a project funded by the ERC through the Starting Grant programme.
- **Scientific Coordinator and PI of WiPLASH** (www.wiplash.eu), a H2020-funded FET-Open project of on-chip communications for AI architectures, with 7 partners.
- Publication record with 118 items:
 - 8 book chapters
 - 42 journal papers (26 Q1, 12 Q2)
 - 64 conference papers
 - 4 pre-prints
- H-index of 29 with 2555 citations, according to Google Scholar.
- Given 20+ invited talks in universities through Europe and the US.
- Served in over 40 workshops and conferences, including positions of general chair, program chair, and publicity chair in the nanocommunications and network-on-chip fields.
- Active as editor and reviewer (300+ reviews) of top-tier Wiley, IEEE, ACM, Elsevier, MDPI journals.

PROJECTS

- **2022 – 2027, European Commission:** Sergi is the PI of the project WINC: Wireless Networks within Next-Generation Computing Systems, funded by the EU through the ERC Starting Grant programme. Total: €1.5M (single PI)
- **2023 – 2027, European Commission:** Sergi is member of the research team of QUADRATURE: Scalable Multi-chip Quantum Architectures Enabled by Cryogenic Wireless/Quantum-Coherent Network-in-Package, funded by the EU through the EIC Pathfinder programme. Total: €3.4M (8 partners)
- **2019 – 2023, European Commission:** Sergi is PI and coordinator of the project WIPLASH: Architecting More Than Moore - Wireless Plasticity for Massive Heterogeneous Computer Architectures, funded by the EU through the FET-OPEN programme. Total: €2.99M (7 partners)
- **2017 – 2020, European Commission:** Sergi is director of research of UPC within the project VISORSURF: A Hardware Platform for Software-driven Functional Metasurfaces funded by the EU through the FET-OPEN programme. Total: €5.74M (6 partners)
- **2018 – 2021, Spanish Ministry of Economy and Competitiveness:** Sergi is member of the work group of the project ALLIANCE: Diseñando una infraestructura de red 5G definida mediante conocimiento hacia la próxima sociedad digital funded by the Spanish government. Total: €300K
- **2016 – 2020, National Science Foundation (NSF):** Sergi is an active participant of the project XPS: Breaking the Scalability Wall of Shared Memory through Fast On-Chip Wireless Communication granted by the NSF CCF group. Total: \$900K
- **2015 – 2018, Graphene Flagship:** Sergi is a research member of the project TUGRACO: Towards Ubiquitous Graphene-based Communications, which is part of the FLAG-ERA initiative under the hood of the EU Graphene Flagship. Total: €100K
- **2015 – 2018, Spanish Ministry of Economy and Competitiveness:** Sergi is member of the work group of the project SUNSET: Sustainable Network Infrastructure Enabling the Future Digital Society funded by the Spanish government. Total: €150K
- **2012 – 2013, SAMSUNG Global Research Outreach:** Sergi is a research member of the award-winning project Graphene-enabled Wireless Communication within the Global Research Outreach (GRO) programme. Total: €110K

SELECTED PUBLICATIONS

- S. Jog, Z. Liu, A. Franques, V. Fernando, S. Abadal, J. Torrellas, H. Hassanieh, "One Protocol to Rule Them All: Wireless Network-on-Chip using Deep Reinforcement Learning," in Proceedings of NSDI 2021, Virtual Event, April 2021. **(first Spanish research institution to be accepted in NSDI)**
- S. Abadal, A. Jain, R. Guirado, J. López-Alonso, E. Alarcón, "Computing Graph Neural Networks: A Survey from Algorithms to Accelerators," ACM Computing Surveys, 2021. **(Q1, 104 citations)**
- S. Rodrigo, S. Abadal, E. Alarcón, M. Bandic, J. van Someren, C. G. Almudever, "On Double Full-Stack Communications-Enabled Architectures for Multi-Core Quantum Computers," IEEE MICRO, 2021.
- F. Lemic, S. Abadal, W. Tavernier, P. Stroobant, D. Colle, E. Alarcón, J. Marquez-Barja, J. Famaey, "Survey on Terahertz Nanocommunication and Networking: A Top-Down Perspective," IEEE Journal on Selected Areas in Communications, 2021. **(Q1, 85 citations)**

- S. Abadal, C. Liaskos, A. Tsioliaridou, S. Ioannidis, A. Pitsillides, J. Solé-Pareta, E. Alarcón, and A. Cabellos-Aparicio, "Computing and Communications for the Software-Defined Metamaterial Paradigm: A Context Analysis," IEEE Access, vol. 5, pp. 6225-6235, 2017. **(Q1, 77 citations)**
- X. Timoneda, S. Abadal, A. Franques, D. Manassis, J. Zhou, J. Torrellas, E. Alarcón, and A. Cabellos-Aparicio, "Engineer the Channel and Adapt to it: Enabling Wireless Intra-Chip Communication," IEEE Transactions on Communications, vol. 68, no. 5, pp. 3247-3258, 2020. **(Q1, 36 citations)**
- S. Abadal, J. Torrellas, E. Alarcón, and A. Cabellos-Aparicio, "OrthoNoC: A Broadcast-Oriented Dual-Plane Wireless Network-on-Chip Architecture," in IEEE Transactions on Parallel and Distributed Systems, vol. 29, no. 3, pp. 628-641, Mar. 2018. **(Q1, 67 citations)**
- V. Fernando, A. Franques, S. Abadal, S. Misailovic, J. Torrellas, "Replica: A Wireless Manycore for Communication-Intensive and Approximate Data," in Proceedings of the ASPLOS '19, Providence, RI, USA, April 2019. **(A+ conference, 38 citations)**
- S. Abadal, E. Alarcón, M. C. Lemme, M. Nemirovsky and A. Cabellos-Aparicio, "Graphene-enabled Wireless Communication for Massive Multicore Architectures," IEEE Communications Magazine, vol. 51, no. 11, pp. 137-143, November 2013. **(Q1, 165 citations)**

SELECTION OF INVITED TALKS AND SEMINARS

- **Invited talk**, "Accelerating Computing with Wireless Networks inside Computing Packages," in the Chinese Association for Artificial Intelligence (CAAI), Remote, February 2023. **(280.000+ views)**.
- **Keynote**, "Towards the Internet of Everything with Graphene Antennas and Reconfigurable Intelligent Surfaces," in the 4th International Conference on Emerging Technology Trends in Electronics, Communication and Networking, Surat, India, November 2021.
- **Invited talk**, "Wireless Communications in the Terahertz Band for Massive Heterogeneous Computer Architectures" Terahertz Workshop, Wireless World Research Forum, April 2021 (50+ attendees)
- **Invited Seminar**, "Towards Wireless-enabled Multicore Computer Architectures", University of Glasgow, March 2021 (30+ attendees)
- **Invited talk**, "Wireless Communications in the Terahertz Band for Massive Heterogeneous Computer Architectures" 3rd Towards THz Communications workshop, Virtual, March 2021 (150+ attendees)
- **Talk**, "Wireless Plasticity for Massive Heterogeneous Computer Architectures," in the Heterogeneity Alliance workshop, HiPEAC 2021, Budapest, Hungary, Jan. 2021. (50+ attendees)
- **Invited talk**, "Terahertz Nanocommunication and Networking: Emerging Applications, Approaches, and Open Challenges", ACM Nanocom 2020, College Park, MD, USA, September 2020. (40 attendees)
- **Invited seminar**, "Programmable Metasurfaces for 6G Wireless Communications in the mmWave and THz Bands", remote webinar, Waterford Institute of Technology, June 2020. (60+ attendees)
- **Pitch**, "Wireless In-Package Communications" within the Bell Labs Prize Innovathon, Bell Labs Headquarters, Murray Hill, NJ, USA (30+ attendees, including CEO Marcus Weldon).
- **Invited lecture**, "IoT scaled to the limit: Nanotechnologies applied to Energy Harvesting and Wireless Communications", Int'l School on Data Science and IoT, University of Catania, 2019. (30+ attendees)
- **Invited lecture**, "Software-defined and software-driven metasurface paradigm", Summer School on Tunable and Software-Driven Functional Metasurfaces, Aalto University, June 2018. (20+ attendees)
- **Invited seminar**, "Wireless Communications Within and Between Chips, Metasurfaces, and Other Small Devices", at University at Buffalo, Buffalo, USA, August 2017. (20+ attendees)
- **Invited lecture**, "Wireless Network-on-chip: Let it Broadcast", at the Interconnection Networks course, ECE/CS Schools, Georgia Tech, April 2016. (20+ attendees)

SUPERVISORY EXPERIENCE

3 PostDoc / 7 PhD / 17 MSc / 33 BSc (includes on-going)

- **Filip Lemic**: incoming Marie Curie postdoctoral fellow from University of Antwerpen (on-going).
- **Santiago Rodrigo**: PhD student with a double degree in ECE and Computer Science (on-going).
- **Sahar Ben Rached**: PhD student on quantum computing architectures (on-going).
- **Hamidreza Taghvaei**: PhD, programmable metasurfaces. First employment: postdoc @Cambridge.
- **Robert Guirado**: outgoing BSc thesis at Georgia Tech, MSc thesis at IBM Zurich. National award.
- **Martina Gallego**: outgoing BSc thesis at Georgia Tech (on-going)
- **Xavier Timoneda**: outgoing BSc thesis at UPC/UIUC (honors). First employment: Huawei, Zurich.
- **Adrián Marruedo**: outgoing BSc thesis at UPC/UIUC (honors). First employment: CFO at Goin.
- **Jorge López Alonso**: MSc thesis at UPC. First employment: Motorola Solutions, Copenhagen.
- **Roshni Maniraj**: incoming BSc thesis from Amrita Univ. Now MSc student at KTH Sweden.

FULL PUBLICATION LIST

Book chapters:

- [B8] H. Taghvaei, S. Abadal, E. Alarcón, A. Cabellos-Aparicio, T. Saeed, A. Pitsillides, O. Tsilipakos, C. Liaskos, A. Tasolamprou, M. Kafesaki, A. Pitilakis, N. Kantartzis, V. Soteriou, M. Lestas, **"The scaling laws of Hypersurfaces,"** in Internet of Materials, CRC Press, 2020, Chapter 8.
- [B7] S. Abadal, J. Solé-Pareta, E. Alarcón, A. Cabellos-Aparicio, **"Graphene-Enabled Wireless Nanoscale Networking Communications in the Terahertz Band,"** in Nanoscale Networking and Communications Handbook, CRC Press, 2019, Chapter 1.
- [B6] S. Abadal, S. E. Hosseini, M. C. Lemme, P. Haring Bolívar, J. Solé-Pareta, E. Alarcón, A. Cabellos-Aparicio, **"Graphene-Based Antenna Design for Communications in the Terahertz Band,"** in Nanoscale Networking and Communications Handbook, CRC Press, 2019, Chapter 2.
- [B5] S. Abadal, C. Liaskos, A. Pitsillides, V. Vassiliou, J. Solé-Pareta, A. Cabellos-Aparicio, E. Alarcón, **"Terahertz Programmable Metasurfaces: Networks Inside Networks,"** in Nanoscale Networking and Communications Handbook, CRC Press, 2019, Chapter 3.
- [B4] S. Abadal, X. Timoneda, J. Solé-Pareta, E. Alarcón, A. Cabellos-Aparicio, A. Tasolamprou, O. Tsilipakos, C. Liaskos, M. Kafesaki, E. N. Economou, C. M. Soukoulis, A. Pitilakis, N. V. Kantartzis, M. S. Mirmoosa, F. Liu, S. Tretakov, **"Nanoscale Channel Modeling in Highly Integrated Computing Packages,"** in Nanoscale Networking and Communications Handbook, CRC Press, 2019, Chapter 6.
- [B3] S. Abadal, J. Solé-Pareta, E. Alarcón, A. Cabellos-Aparicio, **"Media Access Control for Nanoscale Communications and Networking,"** in Nanoscale Networking and Communications Handbook, CRC Press, 2019, Chapter 9.
- [B2] S. Abadal, J. Solé-Pareta, E. Alarcón, A. Cabellos-Aparicio, **"Nanoscale Wireless Communications as Enablers of Massive Manycore Architectures,"** in Nanoscale Networking and Communications Handbook, CRC Press, 2019, Chapter 20.
- [B1] S. Abadal, I. Llatser, A. Mestres, J. Solé-Pareta, E. Alarcón and A. Cabellos-Aparicio, **"Fundamentals of Graphene-enabled Wireless On-Chip Networking,"** in Modeling, Methodologies and Tools for Molecular and Nano-scale Communications, Springer Publishing, 2017, pp. 293-317.

Journal Papers:

- [J42] R. Guirado, A. Rahimi, G. Karunaratne, E. Alarcón, A. Sebastian and S. Abadal, **"WHYPE: A Scale-Out Architecture with Wireless Over-the-Air Majority for Scalable In-memory Hyperdimensional Computing,"** IEEE Journal on Emerging and Selected Topics in Circuits and Systems, vol. 13, no. 1, 2023.
- [J41] K. Ntontin, E. Björnson, A. Boulogeorgos, Z. Abdullah, A. Mesodiakaki, S. Abadal, and S. Chatzinotas, **"Time- and Unit-Cell Splitting Comparison for the Autonomous Operation of Reconfigurable Intelligent Surfaces,"** IEEE Transactions on Green Communications and Networking, 2023.
- [J40] N. Ashraf, T. Saeed, H. Taghvaei, S. Abadal, V. Vassiliou, C. Liaskos, A. Pitsillides and M. Lestas, **"Intelligent Beam Steering for Wireless Communication Using Programmable Metasurfaces,"** IEEE Transactions on Intelligent Transportation Systems, 2023.
- [J39] S. Abadal, R. Guirado, H. Taghvaei, A. Jain, E. Pereira de Santana, P. Haring Bolívar, M. Saeed, R. Negra, Z. Wang, K-T. Wang, M. C. Lemme, J. Klein, M. Zapater, A. Levisse, D. Atienza, D. Rossi, F. Conti, M. Dazzi, G. Karunaratne, I. Boybat and A. Sebastian **"Graphene-based Wireless Agile Interconnects for Massive Heterogeneous Multi-chip Processors,"** IEEE Wireless Communications Magazine, 2022.
- [J38] K. Ntontin, A.-A. A. Boulogeorgos, E. Björnson, W. A. Martins, S. Kisseleff, S. Abadal, E. Alarcón, A. Papazafeiropoulos, F. Lazarakis, S. Chatzinotas, **"Wireless Energy Harvesting for Autonomous Reconfigurable Intelligent Surfaces,"** IEEE Transactions on Green Communications and Networking, 2022.
- [J37] H. Taghvaei, A. Jain, S. Abadal, G. Gradoni, E. Alarcón, A. Cabellos-Aparicio, **"On the Enabling of Multi-user Communications with Reconfigurable Intelligent Surfaces,"** IEEE Transactions on Nanotechnology, vol. 21, pp. 413-423, 2022.
- [J36] M. Imani, S. Abadal, P. Del Hougne, **"Metasurface-Programmable Wireless Network-on-Chip,"** Advanced Science, 2022.
- [J35] H. Taghvaei, A. Pitilakis, O. Tsilipakos, A. C. Tasolamprou, N. V. Kantartzis, M. Kafesaki, A. Cabellos-Aparicio, E. Alarcón, and S. Abadal, **"Multi-Wideband Terahertz Communications via Tunable Graphene-based Metasurfaces in 6G Networks,"** IEEE Vehicular Technology Magazine, 2022.

- [J34] A. Ganguly, S. Abadal, I. Thakkar, N. Enright Jerger, M. Riedel, M. Babaie, R. Balasubramonian, A. Sebastian, S. Pasricha, and B. Taskin, **"Interconnects for DNA, Quantum, In-Memory and Optical Computing: Insights from a Panel Discussion,"** IEEE Micro, 2022
- [J33] T. Saeed, S. Abadal, C. Liaskos, A. Pitsillides, H. Taghvaei, A. Cabellos-Aparicio, V. Soteriou, E. Alarcon, I. F. Akyildiz, M. Lestas, **"Workload Characterization and Traffic Analysis for Reconfigurable Intelligent Surfaces within 6G Wireless Systems,"** IEEE Transactions on Mobile Computing, 2021.
- [J32] S. Abadal, A. Jain, R. Guirado, J. López-Alonso, E. Alarcón, **"Computing Graph Neural Networks: A Survey from Algorithms to Accelerators,"** ACM Computing Surveys, vol. 54, no. 9, pp. 191:1-38, 2021.
- [J31] F. Lemic, S. Abadal, W. Tavernier, P. Stroobant, D. Colle, E. Alarcón, J. Marquez-Barja, J. Famaey, **"Survey on Terahertz Nanocommunication and Networking: A Top-Down Perspective,"** IEEE Journal on Selected Areas in Communications, vol. 36, no. 9, pp. 1506-1543, 2021.
- [J30] K. Rouhi, S. E. Hosseini, S. Abadal, M. Khalily, R. Tafazolli, **"Multi-Channel Near-Field Terahertz Communications Using Reprogrammable Graphene-Based Digital Metasurface,"** IEEE/OSA Journal of Lightwave Technology, vol. 39, no. 21, pp. 6893-6907, 2021.
- [J29] F. Lemic, S. Abadal, C. Han, J. Marquez-Barja, E. Alarcón, J. Famaey, **"Localization in Power-Constrained Terahertz-Operating Software-Defined Metamaterials,"** Nano Communication Networks (Elsevier), 2021.
- [J28] S. Rodrigo, S. Abadal, E. Alarcón, M. Bandic, J. van Someren, C. G. Almudever, **"On Double Full-Stack Communications-Enabled Architectures for Multi-Core Quantum Computers,"** IEEE MICRO, vol. 41, no. 5, pp. 48-56, 2021.
- [J27] H. Taghvaei, A. Jain, X. Timoneda, C. Liaskos, S. Abadal, E. Alarcón, A. Cabellos-Aparicio, **"Radiation pattern prediction for Metasurfaces: A Neural Network based approach,"** MDPI Sensors, 2021.
- [J26] O. Tsilipakos, A. C. Tasolamprou, A. Pitilakis, F. Liu, M. S. Mirmoosa, D. C. Tzarouchis, S. Abadal, H. Taghvaei, C. Liaskos, A. Tsioliaridou, J. Georgiou, A. Cabellos-Aparicio, E. Alarcón, A. Pitsillides, S. Ioannidis, A. Pitsillides, I. F. Akyildiz, N. V. Kantartzis, E. N. Economou, C. M. Soukoulis, M. Kafesaki, S. Tretyakov, **"Towards Intelligent Metasurfaces: The Progress from Globally-Tunable Metasurfaces to Software-Defined Metasurfaces with an Embedded Network of Controllers,"** Advanced Optical Materials, 2020.
- [J25] H. Taghvaei, S. Abadal, A. Pitilakis, O. Tsilipakos, A. Tasolamprou, C. Liaskos, M. Kafesaki, N. V. Kantartzis, A. Cabellos-Aparicio, E. Alarcón, **"Scalability Analysis of Programmable Metasurfaces for Beam Steering,"** IEEE Access, 2020.
- [J24] M. Torres Vega, C. Liaskos, S. Abadal, E. Papapetrou, A. Jain, B. Mouhouche, G. Kalem, S. Ergüt, M. Mach, T. Sabol, A. Cabellos-Aparicio, C. Grimm, F. De Turck, J. Famaey, **"Immersive Interconnected Virtual and Augmented Reality: A 5G and IoT Perspective,"** Journal of Network and Systems Management, 2020.
- [J23] X. Timoneda, S. Abadal, A. Franques, D. Manassis, J. Zhou, J. Torrellas, E. Alarcón, and A. Cabellos-Aparicio, **"Engineer the Channel and Adapt to it: Enabling Wireless Intra-Chip Communication,"** IEEE Transactions on Communications, vol. 68, no. 5, pp. 3247-3258, 2020.
- [J22] S. Abadal, T.-J. Cui, T. Low, J. Georgiou, **"Programmable Metamaterials for Software-Defined Electromagnetic Control: Circuits, Systems, and Architectures,"** IEEE Journal on Emerging and Selected Topics in Circuits and Systems, vol. 10, no. 1, pp. 6--19, March 2020.
- [J21] H. Taghvaei, A. Cabellos-Aparicio, J. Georgiou, S. Abadal, **"Error Analysis of Programmable Metasurfaces for Beam Steering,"** IEEE Journal on Emerging and Selected Topics in Circuits and Systems, vol. 10, no. 1, pp. 62--74, March 2020.
- [J20] D. Kouzapas, C. Skitsas, T. Saeed, V. Soteriou, M. Lestas, A. Philippou, S. Abadal, C. Liaskos, L. Petrou, J. Georgiou, A. Pitsillides, **"Towards Fault Adaptive Routing in Metasurface Controller Networks,"** Journal of Systems Architecture, vol. 106, no. 101703, June 2020.
- [J19] S. Abadal, C. Han, and J. M. Jornet, **"Wave Propagation and Channel Modeling in Chip-Scale Wireless Communications: A Survey from Millimeter-Wave to Terahertz and Optics,"** IEEE Access, vol. 8, pp. 278-293, December 2019.
- [J18] S. E. Hosseini, K. Rouhi, M. Neshat, A. Cabellos-Aparicio, S. Abadal, and E. Alarcón, **"Digital Metasurface Based on Graphene: An Application to Beam Steering in Terahertz Plasmonic Antennas,"** IEEE Transactions on Nanotechnology, vol. 18, no. 1, pp. 734-746, December 2019.
- [J17] A. C. Tasolamprou, A. Pitilakis, S. Abadal, O. Tsilipakos, X. Timoneda, H. Taghvaei, M. S. Mirmoosa, F. Liu, C. Liaskos, A. Tsioliaridou, N. V. Kantartzis, D. Manassis, J. Georgiou, A. Cabellos-Aparicio, E.

- Alarcón, A. Pitsillides, I. F. Akyildiz, S. A. Tretyakov, E. N. Economou, M. Kafesaki, C. M. Soukoulis, **"Exploration of Intercell Wireless Millimeter-Wave Communication in the Landscape of Intelligent Metasurfaces"**, IEEE Access, vol. 7, no. 1, pp. 122931-48, December 2019.
- [J16] S. E. Hosseinienejad, K. Rouhi, M. Neshat, R. Faraji-Dana, A. Cabellos-Aparicio, S. Abadal, and E. Alarcón, **"Reprogrammable Graphene-based Metasurface Mirror with Adaptive Focal Point for THz Imaging,"** Scientific Reports (Nature), no. 9, Article 2868, February 2019.
- [J15] S. E. Hosseinienejad, M. Neshat, R. Faraji-Dana, M. C. Lemme, P. Haring Bolívar, A. Cabellos-Aparicio, E. Alarcón, S. Abadal, **"Reconfigurable THz Plasmonic Antenna Based on Few-layer Graphene With High Radiation Efficiency,"** MDPI Nanomaterials, vol. 8, no. 8, pp. 577, July 2018.
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