

Curriculum Vitae

Emilio Arnieri

Assistant Professor

DIMES – Dept. Computer, Modeling, Electronics, and Systems Engineering

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Emilio Arnieri was born in Cosenza (Italy) on August 11, 1977.

Research and Teaching interests

Main research activities concern the development of dual band antennas and millimeter-wave components, development of numerical methods for the electromagnetic modeling of microwave and millimeter-wave circuits.

Education

2003-2007 Ph.D. degree in electronic engineering from the University “Mediterranea” of Reggio Calabria, Italy.
Dissertation: “Full Wave Analysis of Substrate Integrated Circuits”.

1997-2003 Laurea in Information Technology Engineering (with honors) from the University of Calabria, Rende, Italy

Research Positions

2020	National Scientific Qualification as Associate Professor
2011-Present	Assistant Professor. Dept. Computer, Modeling, Electronics, and Systems Engineering, University of Calabria, Italy
2007-2011	Research Assistant. Dept. Computer, Modeling, Electronics, and Systems Engineering University of Calabria, Italy

Professional Services and Affiliations

Associate Editor IEEE Antennas and Wireless Propagation Letters

Advisory Editor Wiley Engineering Reports

Reviewer for the IEEE Transactions on Antennas and Propagation
Reviewer for the IEEE Transactions on Microwave Theory and Techniques
Reviewer for the IEEE Antennas and Wireless Propagation Letters
Reviewer for IEEE Access
Reviewer for the Journal of Electromagnetic Waves and Applications
Reviewer for IET Microwave, Antennas and Propagation
Reviewer for IET Electronic Letters
Reviewer for International Journal of Microwave and Wireless Technologies
Reviewer for Annals of telecommunications (Springer).
Member of the IEEE Antennas and Propagation Society

Conference Activities

Co-Chair of session “High Directivity Broadband Antennas and Arrays” in 2018 IEEE AP-S Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting; Boston, USA.

Co-Chair of session “THP-A5.5P: 60 GHz Radars and Communications” in 2017 IEEE AP-S Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting; San Diego, CA; USA.

Reviewer for the 2019 IEEE AP-S/URSI Meeting

Reviewer for the 2018 IEEE AP-S/URSI Meeting

Reviewer for the 13th European Conference on Antennas and Propagation (EUCAP 2019).

Reviewer for the 12th European Conference on Antennas and Propagation (EUCAP 2018).

Reviewer for the 11th European Conference on Antennas and Propagation (EUCAP 2017).

Research projects

2019 ESA ITT AO/1-9282/18/NL/NR – Q-/V- Band Antenna For Aeronautical Application (**Work Package Leader**)

- 2011-Present H2020-COMPET-2016 n. 730104 - QV-LIFT: Q/V band earth segment Link for Future high Throughput space systems.
- 2015-2018 FP7 - SPACE- 2013-1: “Digital beam forming for multi-static space-borne synthetic aperture radars” (**Work Package Leader**)
- 2015 ESA 4000109891/14/NL/AD - SKATE: Low cost BFN/RF front end using multinode on chip for Ka band user terminal.
- 2010-2014 FP7 - ICT - 2009 - 5: Flexible Microsystem Technology For Micro- And Millimetre -Wave Antenna Arrays With Intelligent Pixels.
- 2010-2012 PRIN 2008 - Italian research projects of national interest.
- 2007-2009 APRI KA: Antenna Piatta trasmittente e Ricevente in banda KA - legge 297, Art. 5, prot. MiUR n° 2877

Industrial Activities

Co-founder of the academic Spin-off “Antecnica” <http://www.antecnica.it> (website under construction).

Antecnica has been established in 2019 for the purpose of custom antenna and millimeter-wave components design services, providing RF consulting services, and specialized antenna manufacturing to companies and government entities requiring unique antenna solutions.

Honors

- Finalist for Best paper award in Antenna Design at the 13th European Conference on Antennas and Propagation (EuCap 2019);
- Travel Grant “6th Student Participation Programme for the 55th IAF congress in Vancouver”, European Space Agency (ESA).

Journal Publications

1. E. Arnieri, F. Greco, L. Boccia and G. Amendola, "A SIW-Based Polarization Rotator With an Application to Linear-to-Circular Dual-Band Polarizers at

- K-/Ka -Band," in *IEEE Transactions on Antennas and Propagation*, vol. 68, no. 5, pp. 3730-3738, May 2020,
2. Arnieri, E., Boccia, L., Amendola, G., Glisic, S., Mao, C., Gao, S., . . . Younis, M. (2020). Channel characterization of a dual-band dual-polarized SAR with digital beamforming. *International Journal of Microwave and Wireless Technologies*
 3. F. Greco, L. Boccia, E. Arnieri and G. Amendola, "K/Ka-Band Cylindrical Reflector Antenna for Compact Satellite Earth Terminals," in *IEEE Transactions on Antennas and Propagation*, vol. 67, no. 8, pp. 5662-5667, Aug. 2019.
 4. D. Calzona, D. Boccia, L. Arnieri, E. Amendola, G. A SiGe BiCMOS phase shifter based on quarter-wave coupled resonators. *Int J RF Microw Comput Aided Eng.* 2019; 29:e21806.
 5. Arnieri, E., Boccia, L., Amendola, G., Glisic, S., Mao, C., Gao, S., Rommel, T., Penkala, P., Krstic, M., Yodprasit, U., Ho, A., Schrape, O., Younis, M. "An integrated radar tile for digital beamforming X-/Ka-band synthetic aperture radar instruments" (2019) *IEEE Transactions on Microwave Theory and Techniques*, 67 (3), art. no. 8606449, pp. 1197-1206.
 6. E. Arnieri, G. Amendola and L. Boccia, "A Cavity-Backed Shorted Annular Patch (SAP) Array for Mid-Range V-Band Backhauling Applications," *IEEE Access*, vol. 7, pp. 38179-38184, 2019.
 7. Arnieri, E., Boccia, L., Amoroso, F., Amendola, G., Cappuccino, G. Improved efficiency management strategy for battery-based energy storage systems (2019) *Electronics (Switzerland)*, 8 (12), art. no. 1459,
 8. Greco, F., Boccia, L., Arnieri, E., Amendola, G. A Ka-band cylindrical paneled reflectarray antenna (2019) *Electronics (Switzerland)*, 8 (6), art. no. 654,
 9. Arnieri, E., Greco, F., Boccia, L., Amendola, G. "A Reduced Size Planar Grid Array Antenna for Automotive Radar Sensors" (2018) *IEEE Antennas and Wireless Propagation Letters*, 17 (12), art. no. 8492450, pp. 2389-2393.
 10. Bayderkhani, R., Forooraghi, K., Arnieri, E., Abbasi-Arand, B., Virdee, B.S.

- “Analysis of an integrated lens antenna fed by SIW slot array using a hybrid MoM-PO method” (2017) *International Journal of Microwave and Wireless Technologies*, 9 (2), pp. 463-468.
11. C. Mao et al., "X/Ka-Band Dual-Polarized Digital Beamforming Synthetic Aperture Radar," in *IEEE Transactions on Microwave Theory and Techniques*, vol. 65, no. 11, pp. 4400-4407, Nov. 2017.
 12. Sandhu, A.I., Arnieri, E., Amendola, G., Boccia, L., Meniconi, E., Ziegler, V. “Radiating Elements for Shared Aperture Tx/Rx Phased Arrays at K/Ka Band (2016) *IEEE Transactions on Antennas and Propagation*, 64 (6), art. no. 7450649, pp. 2270-2282.
 13. Bayderkhani, R., Forooghi, K., Arnieri, E., Abbasi-Arand, B. “Hybrid MoM-PO analysis of multilayered SIW slot antenna with a dielectric slab radome (2016) *International Journal of Microwave and Wireless Technologies*, 8 (2), pp. 353-361.
 14. Shamsafar, A., Boccia, L., Purtova, T., Tabarani, F., Arnieri, E., Amendola, G., Schumacher, H. “A Four-Port SiGe BiCMOS Duplexer for Ka-Band SatCom on the Move User Terminals” (2015) *IEEE Microwave and Wireless Components Letters*, 25 (11), art. no. 7294698, pp. 733-735.
 15. Amendola, G., Angiulli, G., Arnieri, E., Boccia, L. “Efficient analysis of lossy SIW structures based on the parallel plates waveguide Green's function and fast frequency sweep” (2015) *Microwave and Optical Technology Letters*, 57 (10), pp. 2435-2437.
 16. Boccia, L., Emanuele, A., Shamsafar, A., Arnieri, E., Amendola, G. “Printed sectoral horn power combiner” (2015) *International Journal of Electronics*, 102 (2), pp. 187-199.
 17. Amendola, G., Angiulli, G., Arnieri, E., Abaei, E., De Carlo, D. “A hybrid neural model for the characterization of a single layer SIW waveguide” (2013) *IEICE Electronics Express*, 10 (18).
 18. Angiulli, G., Amendola, G., Arnieri, E. “A simple preconditioner based on skew-Hermitian part of the discretized E-field integral equation” (2013) *IEICE Electronics Express*, 10 (14).

19. Amendola, G., Angiulli, G., Arnieri, E. "Rigorous closed form expressions for the input admittance of a coaxial probe radiating into a lossy parallel plate waveguide. A dyadic green's function approach" (2013) *Progress In Electromagnetics Research M*, 33, pp. 153-167.
20. Amendola, G., Angiulli, G., Arnieri, E., Boccia, L. "Computation of the resonant frequency and quality factor of lossy substrate integrated waveguide resonators by method of moments" (2013) *Progress in Electromagnetics Research Letters*, 40, pp. 107-117.
21. Amendola, G., Angiulli, G., Arnieri, E., Boccia, L., De Carlo, D. "Empirical relations for the evaluation of resonant frequency and quality factor of the TM₀₁₀ mode of circular substrate integrated waveguide (SIW) resonators" (2013) *Progress In Electromagnetics Research C*, 43, pp. 165-173.
22. Amendola, G., Angiulli, G., Arnieri, E., Boccia, L., De Carlo, D. "Characterization of lossy SIW resonators based on multilayer perceptron neural networks on graphics processing unit" (2013) *Progress In Electromagnetics Research C*, 42, pp. 1-11.
23. Abaei, E., Amendola, G., Arnieri, E., Costanzo, S., Mehrshahi, E. "A fast frequency sweep - Green's function based analysis of substrate integrated waveguide" (2012) *Radioengineering*, 21 (4), pp. 1025-1030.
24. Abaei, E., Mehrshahi, E., Amendola, G., Arnieri, E., Shamsafar, A. "Two dimensional multi-port method for analysis of propagation characteristics of substrate integrated waveguide" (2012) *Progress In Electromagnetics Research C*, 29, pp. 261-273.
25. Amendola, G., Arnieri, E., Boccia, L. "Analysis of lossy SIW structures based on the parallel plates waveguide Green's function" (2012) *Progress In Electromagnetics Research C*, 33, pp. 157-169.
26. Amendola, G., Arnieri, E., Boccia, L., Borgia, A., Focardi, P., Russo, I. Hybrid waveguide-stripline feeding network for dual polarised arrays at K band (2011) *IET Microwaves, Antennas and Propagation*, 5 (13), pp. 1568-1575.

27. Arnieri, E., Amendola, G. "Method of moments analysis of slotted substrate integrated waveguide arrays" (2011) *IEEE Transactions on Antennas and Propagation*, 59 (4), art. no. 5704174, pp. 1148-1154.
28. Arnieri, E., Boccia, L., Amendola, G. "A Ka-band dual-frequency radiator for array applications" (2009) *IEEE Antennas and Wireless Propagation Letters*, 8, art. no. 5169970, pp. 894-897.
29. Amendola, G., Arnieri, E., Boccia, L., Borgia, A., Russo, I. "Hybrid waveguide-stripline arrays at K band" (2009) *Electronics Letters*, 45 (23), pp. 1173-1174.
30. Angiulli, G., Arnieri, E., De Carlo, D., Amendola, G. "Fast nonlinear eigenvalues analysis of arbitrarily shaped substrate integrated waveguide (SIW) resonators" (2009) *IEEE Transactions on Magnetics*, 45 (3), art. no. 4787338, pp. 1412-1415.
31. Arnieri, E., Amendola, G. "Analysis of substrate integrated waveguide structures based on the parallel-plate waveguide Green's function" (2008) *IEEE Transactions on Microwave Theory and Techniques*, 56 (7), art. no. 4543851, pp. 1615-1623.
32. Amendola, G., Angiulli, G., Arnieri, E., Boccia, L. "Resonant frequencies of circular substrate integrated resonators" (2008) *IEEE Microwave and Wireless Components Letters*, 18 (4), art. no. 4469925, pp. 239-241.
33. Urbano, D., Arnieri, E., Cappuccino, G., Amendola, G. "Simulation and timing performances of integrated waveguides for ultra-high speed interconnects" (2008) *Microwave and Optical Technology Letters*, 50 (3), pp. 666-672.
34. Angiulli, G., De Carlo, D., Amendola, G., Arnieri, E., Costanzo, S. "Support vector regression machines to evaluate resonant frequencies of elliptic substrate integrated waveguide resonators" (2008) *Progress in Electromagnetics Research*, 83, pp. 107-118.

35. Arnieri, E., Boccia, L., Amendola, G., Di Massa, G. "A compact high gain antenna for small satellite applications" (2007) *IEEE Transactions on Antennas and Propagation*, 55 (2), pp. 277-282.

Conference Proceedings

1. E. Arnieri, L. Boccia, G. Amendola "Integrated 60 GHz Array in SIW Technology" *EuCAP 2019*
2. Arnieri, E., Boccia, L., Amendola, G., Glisic, S., Mao, C., Gao, S., Rommel, T., Penkala, P., Krstic, M., Yodprasit, U., Ho, A., Schrape, O., Younis, M. "Highly Integrated Dual-Band Dual-Polarized Antenna Tile for SAR Applications" *EuCAP 2019*
3. E. Arnieri, G. Amendola, L. Boccia and F. Voci, "TX-RX K/Ka Band Polarizer Based on a SIW Polarization Twister," *2018 IEEE International Symposium on Antennas and Propagation & USNC/URSI National Radio Science Meeting*, Boston, MA, 2018, pp. 2055-2056.
4. F. Greco, E. Arnieri, G. Amendola, L. Boccia and F. Voci, "Dual Band Dual Circularly Polarized Antenna with a Meanderline Polarizer," *2018 IEEE International Symposium on Antennas and Propagation & USNC/URSI National Radio Science Meeting*, Boston, MA, 2018, pp. 119-120.
5. Arnieri E., Amendola G., Boccia L., "Stacked Shorted Circular Patch Antenna in SIW technology for 60-GHz Band Arrays" in *2017 IEEE AP-S Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*; San Diego, CA; USA;
6. Arnieri E., Boccia L., Amendola G., Mao C., Gao S., Rommel T., Glisic S., Penkala P., Krstic M., Ho A., Yodprasit U., Schrape O., Younis M. "A 60-Channels ADC Board for Space Borne DBF-SAR Applications" in *2017 IEEE AP-S Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*; San Diego, CA; USA;

7. Arnieri E, Amendola G, Greco F, Boccia L (2016). A compact reflector based beam forming network in SIW technology for K band applications. In: *2016 10th European Conference on Antennas and Propagation*, . vol. 1, p. 681-686, ISBN: 978-889070186-3, Davos; Switzerland; 0 April 2016 - 15 April 2016, doi: 10.1109/EuCAP.2016.7481613

8. Sandhu A I, Arnieri E, AMENDOLA G, Boccia L, Meniconi E, Ziegler V (2016). A K/Ka band radiating element for TX/RX phased array. In: *European Microwave Week 2016: "Microwaves Everywhere", EuMW 2016 Conference Proceedings*; . doi: 10.1109/EuMC.2016.7824482

9. Gao S., Mao C., Qin F., Patyuchenko A., Tienda C., Younis M., Krieger G., Glisic S., Debski W., Boccia L, Amendola G., Arnieri E., Krstic M., Koczor A., Penkala P., Celton E. (2016). Dual-band digital beamforming synthetic aperture radar for earth observation. In: *Microwave Conference (APMC), 2015 Asia-Pacific*. vol. 1, p. 681-686, ISBN: 978-88-907018-6-3, Jinling HotelNanjing; China; 6 December 2015 -9 December 2015, doi: 10.1109/APMC.2015.7411779

10. Greco F, Amendola G, Boccia L, Arnieri E (2016). A dual band hat feed for reflector antennas in Q-V band. In: *10th European Conference on Antennas and Propagation, EuCAP 2016*; Davos; Switzerland; 10 April 2016 through 15 April 2016;. vol. 1, p. 681-686, ISBN: 978-889070186-3, Davos; Switzerland; 10 april 2016 15 april 2016, doi: 10.1109/EuCAP.2016.7481592

11. Patyuchenko, A., Younis, M., Krieger, G., Wang, Z., Gao, S., Qin, F., Mao, C., Glisic, S., Debski, W., Boccia, L., Amendola, G., Arnieri, E., Krstic, M., Celton, E., Penkala, P. Highly integrated dual-band digital beamforming Synthetic Aperture Radar (2015) *2015 European Radar Conference, EuRAD 2015 - Proceedings*, art. no. 7346222, pp. 1-4.

12. Arnieri, E., Salomon, A.M., Amendola, G., Boccia, L., Paparo, M., Scaccianoce, S. A preliminary study on a reduced size planar grid array for automotive radars (2015) *2015 9th European Conference on Antennas and Propagation, EuCAP 2015*, art. no. 7228632, .

13. Gao, S., Qin, F., Mao, C., Patyuchenko, A., Younis, M., Krieger, G., Glisic, S., Debski, W., Boccia, L., Amendola, G., Arnieri, E., Krstic, M., Koczor, A., Penkala, P., Celton, E. A Ka/X-band digital beamforming synthetic aperture radar for earth observation (2015) *RAST 2015 - Proceedings of 7th International Conference on Recent Advances in Space Technologies*, art. no. 7208429, pp. 681-686.
14. Greco, F., Amendola, G., Arnieri, E., Boccia, L., Sandhu, A.I. A dual-band, dual-polarized array element for Ka band satcom on the move terminals (2014) *8th European Conference on Antennas and Propagation, EuCAP 2014*, art. no. 6902309, pp. 2432-2435.
15. Boccia, L., Shamsafar, A., Arnieri, E., Sandhu, A.I., Amendola, G., Purtova, T., Tarabani, F., Válenta, V., Schumacher, H., Meniconi, E., Kaynak, M., Tillack, B., Luo, Q., Gao, S., Ziegler, V. Sige BiCMOS technology for Ka-band satcom on the move user terminals (2014) *8th European Conference on Antennas and Propagation, EuCAP 2014*, art. no. 6902357, pp. 2615-2616.
16. Luo, Q., Gao, S., Chaloun, T., Menzel, W., Boccia, L., Arnieri, E., Amendola, G., Ziegler, V. Antenna array elements for Ka-band satellite communication on the move (2013) *2013 Loughborough Antennas and Propagation Conference, LAPC 2013*, art. no. 6711868, pp. 135-139.
17. Amendola, G., Arnieri, E., Boccia, L., Shamsafar, A. Efficient analysis of lossy substrate integrated waveguides based on the parallel-plate waveguide Green's function (2013) *2013 7th European Conference on Antennas and Propagation, EuCAP 2013*, art. no. 6546447, pp. 1063-1066.
18. Amendola, G., Arnieri, E., Boccia, L., Sandhu, A.I. An efficient analysis of lossy substrate integrated waveguide resonators (2013) *2013 7th European Conference on Antennas and Propagation, EuCAP 2013*, art. no. 6546450, pp. 1079-1082.
19. Boccia, L., Emanuele, A., Arnieri, E., Shamsafar, A., Amendola, G. Printed power-combiner based on sectoral horns (2012) *European Microwave Week 2012: "Space for Microwaves", EuMW 2012, Conference Proceedings - 42nd European Microwave Conference, EuMC 2012*, art. no. 6459084, pp. 293-296.

20. Amendola, G., Arnieri, E., Boccia, L., Ziegler, V. Annular ring slot radiating element for integrated millimeter wave arrays (2012) *Proceedings of 6th European Conference on Antennas and Propagation, EuCAP 2012*, art. no. 6206468, pp. 3082-3085.
21. Boccia, L., Emanuele, A., Arnieri, E., Shamsafar, A., Amendola, G. Substrate integrated power combiners (2012) *Proceedings of 6th European Conference on Antennas and Propagation, EuCAP 2012*, art. no. 6206405, pp. 3631-3634.
22. Arnieri, E., Amendola, G., Boccia, L. Efficient analysis of slotted SIW (2010) *EuCAP 2010 - The 4th European Conference on Antennas and Propagation*, art. no. 5505775, .
23. Arnieri, E., Amendola, G., Boccia, L. Analysis of integrated waveguide slot array antennas (2009) *European Microwave Week 2009, EuMW 2009: Science, Progress and Quality at Radiofrequencies*, art. no. 5296522, pp. 421-424.
24. Russo, I., Arnieri, E., Borgia, A., Amendola, G., Boccia, L., Costanzo, S. Dual polarization ka-band array with hybrid series/parallel e-plane waveguide/stripline feeding network (2009) *IEEE Antennas and Propagation Society, AP-S International Symposium (Digest)*, art. no. 5171481, .
25. Arnieri, E., Russo, I., Boccia, L., Borgia, A., Amendola, G. Hybrid waveguide-stripline feeding networks for Ka-band and millimetre-wave arrays (2009) *European Conference on Antennas and Propagation, EuCAP 2009, Proceedings*, art. no. 5068143, pp. 2588-2591.
26. Angiulli, G., Arnieri, E., De Carlo, D., Amendola, G. Feed forward neural network characterization of circular SIW resonators (2008) *2008 IEEE International Symposium on Antennas and Propagation and USNC/URSI National Radio Science Meeting, APSURSI*, art. no. 4619807, .
27. Arnieri, E., Russo, I., Boccia, L., Amendola, G., Di Massa, G. Building blocks for hybrid waveguide/suspended-stripline parallel/series fed millimeter wave arrays (2008) *2008 IEEE International Symposium on Antennas and Propagation and USNC/URSI National Radio Science Meeting, APSURSI*, art. no. 4618963, .

28. Angiulli, G., De Carlo, D., Tringali, S., Amendola, G., Arnieri, E. Modelling SIW resonators using support vector regression machines (2008) *Progress in Electromagnetics Research Symposium*, pp. 392-395.
29. Arnieri, E., Amendola, G., Boccia, L., Di Massa, G. Coaxially fed substrate integrated radiating waveguides (2007) *IEEE Antennas and Propagation Society, AP-S International Symposium (Digest)*, art. no. 4396096, pp. 2718-2721.
30. Arnieri, E., Amendola, G., Boccia, L., Di Massa, G. Substrate integrated radiating waveguides with a coaxial feed (2007) *IET Seminar Digest, 2007* (11961), .
31. E. Arnieri, L. Boccia, G. Amendola and G. Di Massa, "A dual-band dual-polarized Ka printed array," 2006 *IEEE Antennas and Propagation Society International Symposium*, Albuquerque, NM, 2006, pp. 3617-3620.
32. Arnieri, E., Amendola, G., Boccia, L., Di Massa, G. Full wave analysis of substrate integrated circuits (2006) *European Space Agency, (Special Publication) ESA SP, 626 SP, 4 p.*
33. Arnieri, E., Boccia, L., Amendola, G., Di Massa, G. A dual-band dual-polarized Ka printed array (2006) *European Space Agency, (Special Publication) ESA SP, 626 SP, 4 p.*
34. Arnieri, E., Boccia, L., Amendola, G., Di Massa, G. A compact high gain antenna for small-satellites (2004) *International Astronautical Federation - 55th International Astronautical Congress 2004*, 8, pp. 5510-5512.
35. Arnieri, E., Boccia, L., Amendola, G., Di Massa, G. A high gain antenna for small satellite missions (2004) *IEEE Antennas and Propagation Society, AP-S International Symposium (Digest)*, 2, pp. 1587-1590.