

CURRICULUM VITÆ OF DR. ANTONIO FARAONE

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Business Motorola Solutions Inc., Chief Technology Office, 8000 W. Sunrise Blvd., MS 31-9CC,
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EXPERIENCE

- 1997-present** Motorola (Solutions) Inc.
- 2014-pres. Chief EME Scientist; EME standards and product compliance; antenna R&D @ CTO.
- 2008-2013 Fellow of the Technical Staff at Motorola (Solutions), Chief Technology Office; Antenna Center of Excellence lead and global leadership of Antenna R&D; manager of the EME Research Lab; SAR standards and product EME compliance.
- 2000-2008 Manager of Portable Antenna Research at the Motorola Labs; Technical Manager of the Mobile Devices SAR labs. Chair of the Motorola Antenna Steering Committee.
- 1997-2000 Corporate EME Research Lab. Antenna R&D, EMC, RF dosimetry, SAR standards.
- 1993-1996** Consultant/contractor (while pursuing the Ph.D.)
- 1996 OMNITEL S.p.A., Rome, Italy. RF field measurements of GSM cellular base stations.
- 1996 ICEMB (Institute for Research on EM fields Bio-interactions), Genoa, Italy. Italian National Research Council (CNR) Strategic Project "Wideband Wireless LANs".
- 1993-1996 European Space Agency (ESA) project "EMC for Long Duration Missions" (jointly with Matra Marconi Space). Teaching Assistant at the University of Rome "La Sapienza".

REFERENCES

- Available upon request.

EDUCATION

- High school degree received at *Liceo Scientifico "Innocenzo XII"* in Anzio (Rome), Italy.
- "Laurea" degree in Electronic Engineering (MSEE eq.) achieved *summa cum laude* in 1992 at the University of Rome "La Sapienza", Italy. Dissertation on full-wave modeling of microwave integrated circuits.
- Qualification to practice as a Professional Engineer (Italy), 1993.
- Ph.D. in Applied Electromagnetics achieved at the University of Rome "La Sapienza", Italy, in 1997. Dissertation on full-wave modeling of EMC/EMI in planar multi-layer integrated circuits.

LANGUAGES

- Fluent (speak/read/write) in Italian, English, and Spanish. Beginner (reading) in Portuguese and French.

CAREER HIGHLIGHTS

- Established the Motorola Labs antenna R&D program in 2000, which was later awarded US government research grants exceeding \$2M on multi-band, tunable integral antennas for the Software Defined Radio.
- Co-invented state-of-the-art integrated antenna technology for multi-band cellphones [Folded Inverted Conformal Antenna (US Patent 6,762,723) and derivatives (US Patents 6,867,736/7,423,598/7,642,964)].
- Led the Motorola Labs antenna R&D team in developing and implementing cutting-edge solutions:
 - A835 (quad-band GSM/UMTS), industry-first 3G handset with internal antenna (also sold by Siemens)
 - V80 (tri-band GSM), industry-first swivel-handset with an internal antenna
 - A1000/M1000 (quad-band GSM/UMTS), first Motorola 3G phone with touch-screen & internal antenna
 - MOTOROKR E1 (tri-band GSM), the first ROKR, best Motorola phone RF-wise (AT&T, 2007)
 - XTS4000 (VHF), industry-first high-tier VHF professional radio in a clam-shell form factor
 - MOTOPHONE, the first ultra-low-cost phone for emerging markets by Motorola
 - KRZR K3 (quad-band GSM/UMTS), the first 3G KRZR-style phone
 - Q9h (quad-band GSM/UMTS), the *chinless* Q-phone, best in class RF-wise (AT&T, 2009)
 - Motorola Sidekick (quad-band GSM), the first Sidekick multi-modality handset marketed by Motorola
 - MOTORIZR Z9 (quad-band GSM/UMTS), the first metal-frame slider-phone by Motorola
 - APX7000 (tri-band VHF/7-800MHz/GPS), the first multi-band professional radio by Motorola
 - CLIQ (penta-band GSM/UMTS), the first Motorola Android phone with MotoBlur
 - Droid Milestone (penta-band GSM/UMTS), the first Droid phone for GSM/UMTS markets
- Chair of the Motorola Antenna Steering Committee (2004-2010).
- Co-chair of the Motorola Antenna Technology Patent Committee (2007-2010).
- Co-editor of the IEEE Std 1528, the first-ever SAR compliance measurement standard for mobile phones.
- Developed in-vivo exposure system (Ferris Wheel) for large scale animal bioassays used in a fundamental study on mouse lymphoma and later adopted by researchers worldwide.
- Developed theoretical framework and analytical formulae yielding accurate, cost-effective RF exposure compliance assessments near radio base station antennas. Implemented corresponding compliance process.
- Established a methodology accepted by the FCC to qualify the EME compliance of Motorola vehicle mounted mobile radio antennas using FDTD-based SAR computations. Motorola earned a FCC waiver to use it.
- Motorola and ANSI/US Technical Advisory Group representative in the IEC Project Team 62232, developing standardized guidelines for RF exposure assessment near radio base stations, WiFi access points, etc.
- Elected Convener of the IEC Technical Committee 106 (*Methods for the assessment of electric, magnetic and electromagnetic fields associated with human exposure*), Working Group 4, in 2007.
- Convener of IEC TC 106 Project Team 62209 (*Human Exposure to Radio Frequency Fields from Handheld and Body-Mounted Wireless Communication Devices - Human models, Instrumentation, and Procedures*), 2009-10.
- Co-editor of the IEC 62209-2(2010), first SAR standard for body-worn products (tablets, phones, radios).
- Spearheaded the IEC 62630(2010) technical report for SAR measurements of multi-antenna handsets.
- Proposed and co-developed, jointly with the US Federal Communications Commission Office of Engineering and Technology, the FCC KDB 643646 test-reduction protocol applicable to professional two-way radios.
- Developed state-of-the-art antenna systems for multi-band, MIMO portable radios, and RFID arrays.
- Appointed Motorola Solutions Chief EME Scientist in 2013.
- Appointed coordinator of the scientific review process for the IEEE International Committee on Electromagnetic Safety (ICES), in 2014.
- Development of the all-band (VHF|UHF|7-800MHz|GNSS) antenna for the first-ever Motorola all-band LMR portable APX8000 radio; key IP for the flexible all-band antenna technology in the flagship APX NEXT radio.

- Appointed to serve as an Industry Representative on the US Food and Drug Administration's Technical Electronic Product Radiation Safety Standards Committee (TEPRSSC), from 2016 to 2020.
- Co-chair of the Regulatory Working Group, Mobile & Wireless Forum, 2016-2019.
- AdCom member of the IEEE International Committee on Electromagnetic Safety, since 2017.
- Chairman of the Mobile & Wireless Forum (www.mwfai.org), since 2018.

PATENTS

- Forty granted US patents and six pending, plus international grants. Granted US patents:
 - US Patent 5,933,115, *Planar Antenna with Patch Radiators for Wide Bandwidth*
 - US Patent 5,982,335, *Antenna with Low Reluctance Material Positioned to Influence Radiation Pattern*
 - US Patent 6,002,368, *Multi-Mode Pass-Band Planar Antenna*
 - US Patent 6,121,932, *Microstrip Antenna and Method of Forming Same* (* divisional)
 - US Patent 6,195,051, *Microstrip Antenna and Method of Forming Same* (* divisional)
 - US Patent 6,762,723, *Wireless Communication Device Having Multiband Antenna*
 - US Patent 6,801,164, *Broad Band and Multi-Band Antennas*
 - US Patent 6,867,736, *Multi-Band Antennas*
 - US Patent 7,102,577, *Multi-Antenna Handheld Wireless Communication Device*
 - US Patent 7,123,198, *Electrically Small Wideband Antenna*
 - US Patent 7,277,058, *Wireless Communication Device Antenna for Improved Communication with a Satellite*
 - US Patent 7,330,155, *Antenna System*
 - US Patent 7,342,543, *Electronic Device to Receive Radio Frequency Signals*
 - US Patent 7,388,544, *Antenna with a Split Radiator Element*
 - US Patent 7,423,598, *Communication Device with a Wideband Antenna*
 - US Patent 7,642,964, *Low Profile Internal Antenna*
 - US Patent 7,928,914, *Multi-Frequency Conductive-Strip Antenna System*
 - US Patent 8,587,495, *Multiple-Input Multiple-Output (MIMO) Antenna System*
 - US Patent 8,674,890, *Wideband and Multiband External Antenna for Portable Transmitters*
 - US Patent 8,884,838, *Multi-Band Subscriber Antenna for Portable Two-Way Radios*
 - US Patent 9,041,606, *Uninterrupted Bezel Antenna*
 - US Patent 9,136,588, *System and Method for Short UHF Antenna with Floating Transmission Line*
 - US Patent 9,144,028, *Method and Apparatus for Uplink Power Control in a Wireless Communication System*
 - US Patent 9,361,494, *System and Method of Estimating True Bearings of Radio Frequency Identification (RFID) Tags Associated with Items Located Directly Underneath an Overhead Antenna Array in a Controlled Area*
 - US Patent 9,472,842, *Low-profile, antenna structure for an RFID reader and method of making the antenna structure*
 - US Patent 9,509,060, *Open Waveguide Beamforming Antenna for Radio Frequency Identification Reader*
 - US Patent 9,515,708, *Context Aware Multiple-Input and Multiple-Output Antenna Systems and Methods*
 - US Patent 9,711,847, *Apparatus and method for integrating a reduced-sized antenna with an accessory connector*
 - US Patent 9,755,294, *Accurately Estimating True Bearings of Radio Frequency Identification (RFID) Tags Associated with Items in a Controlled Area*
 - US Patent 9,847,571, *Compact, Multi-Port, MIMO Antenna with High Port Isolation and Low Pattern Correlation and Method of Making Same*
 - US Patent 9,887,462, *Antenna with Embedded Wideband Matching Substrate*
 - US Patent 9,899,879, *Systems and Methods for Controlling Wireless Power Transfer*
 - US Patent 9,979,069, *Wireless broadband/land mobile radio antenna system*
 - US Patent 10,051,413, *Method for exchanging information corresponding to a public safety incident*
 - US Patent 10,111,279, *Converged communications device and method of controlling the same*
 - US Patent 10,135,139, *Multiband antenna system*
 - US Patent 10,158,178, *Low profile, antenna array for an RFID reader and method of making same*
 - US Patent 10,243,606, *Portable communications device with tactility element*
 - US Patent 10,374,311, *Antenna for a portable communication device*
 - US Patent 10,622,843, *System and method for determining a microwave beam and a power setting for wireless power transfer within a volume*

AWARDS

- Two research grant awards (1993 & 1994) by Elettronica S.p.A., Rome, Italy, and the Department of Electronics Engineering at the University of Rome “La Sapienza”, Italy.
- “Giorgio Barzilai Prize” by the IEEE *Central and South Italy Section* for “Best Laurea [MSEE] Thesis in 1992”.
- Motorola award for “Outstanding performance in global standards activities” in 2003.
- Motorola “Distinguished Innovator” Award (10+ granted US patents) in 2007.
- Motorola Scientific Advisory Board Associates (SABA) member, since 2007. SABA members constitute less than 2% of the technical staff at Motorola Solutions.
- Motorola Dan Noble Fellow, since 2012. DNF represents the highest technical achievement award at Motorola (Solutions.) DNFs constitute less than 0.3% of the technical staff at Motorola Solutions.
- International Electrotechnical Commission (IEC) “1906 Award”, which “recognizes exceptional current achievements of experts”, in 2013.
- Motorola Solutions “Master Innovator” Award (25+ granted US patents) in 2016.
- Motorola Top Invention Award in 2007 and Motorola Solutions Top Invention Award in 2018.

PROFESSIONAL MEMBERSHIPS & APPOINTMENTS

- Member of the International Union of Radio Science (URSI) since 1996.
- Member of the Institute of Electrical and Electronic Engineers (IEEE) since 1997.
- Member of the IEEE Standards Coordinating Committee 34 (now TC34) since 1997.
- Member of the IEEE Standards Coordinating Committee 28 (now TC95) since 1999.
- Member of the Bioelectromagnetics Society (BEMS) since 2003.
- Member of the IEEE Committee on Man and Radiation (COMAR) since 2015.
- Member of the Editorial Board of the *EMC Europe 2002 Symposium*.
- Member of the Editorial Board of the 2006 EMC Europe Symposium, Barcelona, Spain.
- Reviewer for the scientific journal *Bioelectromagnetics* since 1999.
- Reviewer for the *IEEE Transactions on Electromagnetic Compatibility* since 1999.
- Reviewer for the *IEEE Transactions on Microwave Theory and Techniques* since 1999.
- Reviewer for the *IEEE Electronics Letters* since 2006.
- Reviewer for the *IEEE Sensors Journal* since 2006.
- Reviewer for the *IEEE Antennas and Wireless Propagation Letters* since 2008.
- Reviewer for the scientific journal *Radiation Protection Dosimetry* since 2014.
- Reviewer for the scientific journal *Radiation Research* since 2016.
- Motorola (Solutions) representative to the Mobile & Wireless Forum (MWF) Standards & Regulatory WGs.
- Member of the US Technical Advisory Group (TAG) of the IEC Technical Committee 106 (*Methods for the assessment of electric, magnetic and electromagnetic fields associated with human exposure*) since 2004.
- Convener of the IEC TC106 Project Team 62209, in 2009.
- Guest Editor, Special Yearly Issues on “Wideband, Multiband, Tunable, and Smart Antenna Systems for Mobile and UWB Wireless Applications”, *Intl. Journal of Antennas and Propagation* (2013-14-15-16).

ENGINEERING SKILLS

- Design: multi-band RF antennas, smart arrays, low-frequency Wireless Power Transfer devices, microwave devices, multi/broadband matching circuits, RF exposure systems, RF dosimetry experiments, software tools.
- Computational: Matlab, MathCAD, FORTRAN, VBA, CST MWS, xFDTD, ADS.
- Experimental: 2D/3D antenna chambers, DASY SAR systems, SAs, NAs, sig-gens, calorimetry, thermography.
- Wireless systems: APCO P25, 3GSM, LTE, TETRA, WLAN, A4WP.
- Problem solving: effective use of information, resources, tools, skills. Rigor & relentlessness.

JOURNAL PUBLICATIONS

- [1] R. Cicchetti and A. Faraone, "An Expansion Function Suited for Fast Full-Wave Spectral Domain Analysis of Microstrip Discontinuities," *International Journal of Microwave and Millimeter-Wave Computer-Aided Engineering*, Vol. 4, No. 3, pp. 297-306, July 1994.
- [2] R. Cicchetti and A. Faraone, "A Full-Wave Spectral Domain Analysis of an Asymmetric Gap Microstrip Discontinuity," *Microwave and Optical Technology Letters.*, vol. 9, No. 6, Aug. 20 1995, pp. 356-358.
- [3] P. Bernardi, R. Cicchetti, and A. Faraone, "A Full-Wave Characterization of an Interconnecting Line Printed on a Dielectric Slab Backed by a Gridded Ground Plane," *IEEE Transactions on Electromagnetic Compatibility*, Vol. 38, No. 3, pp. 237-243, Aug. 1996 (Invited Paper in Special Issue on EMC Research in Italy).
- [4] R. Cicchetti and A. Faraone, "Transient Emission from Microstrip Interconnects: Theoretical Formulation and CAD Modeling," *IEEE Transactions on Electromagnetic Compatibility*, Vol. 38, No. 3, pp. 367-375, Aug. 1996.
- [5] P. Bernardi, R. Cicchetti, and A. Faraone, "EMC-Oriented Full-Wave Modeling of Passive MMIC Structures," *Special Issue on Millimeter Waves on the Annales des Télécommunications*, vol. 52, No. 3-4, 1997
- [6] R. Cicchetti and A. Faraone, "A Full-Wave Radiation Model for a Class of Gridded Ground Interconnecting Structures," *IEEE Transactions on Antennas and Propagation*, Vol. 47, No. 1, pp. 212-213, Jan. 1999.
- [7] R. Cicchetti and A. Faraone, "Exact Surface Impedance/Admittance Boundary Conditions for Complex Geometries: Theory and Applications," *IEEE Transactions on Antennas and Propagation*, Vol. 48, No. 2, pp. 223-231, Feb. 2000.
- [8] A. Faraone, R. Tay, K. Joyner, and Q. Balzano, "Estimation of the Average Power Density in the Vicinity of Cellular Base Station Antennas," *IEEE Transactions on Vehicular Technology*, Vol. 49, No. 3, pp. 984-996, May 2000.
- [9] Q. Balzano, C. K. Chou, R. Cicchetti, and A. Faraone, "An Efficient RF Exposure System with Precise SAR Estimation for In-Vivo Animal Studies at 900 MHz," *IEEE Transactions on Microwave Theory and Techniques* (Special Issue on Bioelectromagnetics), Vol. 48, no. 11-2, pp. 2040-2049, Nov. 2000.
- [10] P. Russo and A. Faraone, "Numerical Analysis of the 'Ferris Wheel' Mice Exposure System Using an Efficient Cylindrical FDTD Scheme," *Applied Computational Electromagnetics Journal* (Special Issue on Bioelectromagnetics), vol. 16, no. 2, pp. 181-189, July 2001.
- [11] B. W. Wilson, A. Faraone, D. Sheen, M. Swicord, W. Park, J. Morrissey, J. Creim, and L. E. Anderson, "Space efficient system for small animal, whole body microwave exposure at 1.6 GHz," *Bioelectromagnetics*, vol. 23, no. 1, pp. 127-131, Jan. 2002.
- [12] M. Kanda, Q. Balzano, P. Russo, A. Faraone, and G. Bit-Babik, "Effects of ear-connection modeling on the electromagnetic-energy absorption in a human-head phantom exposed to a dipole antenna field at 835 MHz," *IEEE Transactions on Electromagnetic Compatibility*, Vol. 44, No. 1, pp. 4-10, Feb. 2002.
- [13] R. Cicchetti, A. Faraone, and Q. Balzano, "A Uniform Asymptotic Evaluation of the Field Radiated from Collinear Array Antennas," *IEEE Transactions on Antennas and Propagation*, Vol. 51, No. 1, pp. 89-102, Jan. 2003.
- [14] G. Bit-Babik, C. K. Chou, A. Faraone, A. Gessner, M. Kanda, and Q. Balzano, "Estimation of the SAR in the Human Head and Body due to Radiofrequency Radiation Exposure from Handheld Mobile Phones with Hands-Free Accessories," *Radiation Research*, Vol. 159, pp. 550-557, Apr. 2003.
- [15] R. Cicchetti and A. Faraone, "Estimation of the Peak Power Density in the Vicinity of Cellular and Radio Base Station Antennas," *IEEE Transactions on Electromagnetic Compatibility*, Vol. 46, No. 2, pp. 275-290, May 2004.
- [16] R. Cicchetti and A. Faraone, "Incomplete Hankel and Modified Bessel Functions: A Class of Special Functions for Electromagnetics," *IEEE Transactions on Antennas and Propagation*, Vol. 52, No. 12, pp. 3373-3389, Dec. 2004.
- [17] G. Bit-Babik, A. W. Guy, C-K. Chou, A. Faraone, M. Kanda, A. Gessner, J. Wang, and O. Fujiwara, "Simulation of Exposure and SAR Estimation for Adult and Child Heads Exposed to RF Energy from Portable Communication Devices," *Radiation Research*, Vol. 163, pp. 580-590, 2005.
- [18] C. Di Nallo and A. Faraone, "Multi-band internal antenna for mobile phones," *IEE Electronics Letters*, Vol. 41, No. 9, pp. 514-515, Apr. 2005.
- [19] R. Cicchetti and A. Faraone, "On the Optical Behavior of the Electromagnetic Field Excited by a Semi-Infinite Electric Traveling-Wave Current," *IEEE Transactions on Antennas and Propagation*, Vol. 53, No. 12, pp. 4015-4025, Dec. 2005.
- [20] A. Faraone, W. Luengas, S. Chebrolu, M. Ballen, G. Bit-Babik, A. Gessner, M. Kanda, T. Babij, M. Swicord, and C. K. Chou, "Dosimetry of the Ferris-Wheel Mouse Exposure System," *Radiation Research*, Vol. 165, pp. 105-112, 2006.
- [21] B. Beard, W. Kainz, T. Onishi, T. Iyama, S. Watanabe, O. Fujiwara, J. Wang, G. Bit-Babik, A. Faraone, J. Wiart, A. Christ, N. Kuster, A-K Lee, H. Kroeze, M. Siegbahn, J. Keshvari, H. Abrishamkar, W. Simon, D. Manteuffel, and N. Nikoloski, "Comparisons of Computed Mobile Phone Induced SAR in the SAM Phantom to that in Anatomically Correct Models of the Human Head," *IEEE Transactions on Electromagnetic Compatibility*, Vol. 48, No. 2, pp. 397-407, May 2006.

- [22] D. Caratelli, R. Cicchetti, G. Bit-Babik, and A. Faraone, "A Perturbed E-Shaped Patch Antenna for Wide-Band WLAN Applications," *IEEE Transactions on Antennas and Propagation*, Vol. 54, No. 6, pp. 1871-1874, June 2006.
- [23] C. Di Nallo and A. Faraone, "Effect of Amplitude Modulation of the CDMA Signal on SAR Measurements," *IEEE Transactions on Electromagnetic Compatibility*, Vol. 48, No. 3, pp. 552-562, Aug. 2006.
- [24] D. Caratelli, R. Cicchetti, G. Bit-Babik, and A. Faraone, "Near-Field and Circuit Model of a Novel Patch Antenna for WWLAN Applications," *Microwave and Optical Technology Letters*, Vol. 49, No. 1, pp. 97-100, Jan. 2007.
- [25] M. Ali, M. G. Douglas, A. T. M. Sayem, A. Faraone, and C-K. Chou,, "Threshold Power of Canonical Antennas for Inducing SAR at Compliance Limits in the 300-3000 MHz Frequency Range," *IEEE Transactions on Electromagnetic Compatibility*, Vol. 49, No. 1, pp. 143-152, Feb. 2007.
- [26] R. Cicchetti and A. Faraone, "Analysis of the Field Excited in Semi-Infinite Open-Ended Circular Waveguides Using Physical Optics and Incomplete Hankel Functions Formulation," *IEEE Transactions on Antennas and Propagation*, Vol. 55, No. 6, pp. 1887-1892, June 2007.
- [27] G. Bit-Babik, J. J. Morrissey, A. Faraone, and Q. Balzano, "Electromagnetic compatibility management of wireless transceivers in electromagnetic interference sensitive medical environments," (invited paper) *Ann. Ist. Super. Sanita'*, Vol. 43, No. 3, pp. 218-224, 2007.
- [28] R. Cicchetti and A. Faraone, "Radiation from Open-Ended Circular Waveguides: A Formulation Based on the Incomplete Hankel Functions," *Progress in Electromagnetics Research*, PIER 78, pp. 285-300, 2008.
- [29] D. Caratelli, R. Cicchetti, A. Faraone, and G. Bit-Babik, "Radio base stations and user terminals based on a novel E-shaped patch antenna for WWLAN applications," *Atti "Fondazione Giorgio Ronchi"*, vol. LXIII, No. 1-2, pp. 105-114, 2008.
- [30] R. Cicchetti and A. Faraone, "Exact Closed-Form Solution of the Electromagnetic Field Excited by Pulse-Shaped and Triangular Line Currents," *IEEE Transactions on Antennas and Propagation*, Vol. 56, No. 6, pp. 1706-1716, June 2008.
- [31] A. Razmadze, L. Shoshiashvili, D. Kakulia, R. Zaridze, G. Bit-Babik, and A. Faraone, "Influence of Specific Absorption Rate Averaging Schemes on Correlation between Mass-Averaged Specific Absorption Rate and Temperature Rise," *Electromagnetics*, Vol. 29, pp. 77-90, Jan. 2009.
- [32] M. Prishvin, R. Zaridze, G. Bit-Babik, and A. Faraone, "Improved Numerical Modelling of Heat Transfer in Human Tissue Exposed to RF Energy," *Australasian Physical & Engineering Science in Medicine*, Vol. 33, No. 4, pp. 307-317, Feb. 2011.
- [33] N. Perentos, S. Iskra, A. Faraone, R. J. McKenzie, G. Bit-Babik, and V. Anderson, "Exposure Compliance Methodologies for Multiple Input Multiple Output (MIMO) Enabled Networks and Terminals," *IEEE Transactions on Electromagnetic Compatibility*, Vol. 60, No. 2, pp. 644-653, Feb. 2012.
- [34] P. S. Hall, P. Gardner, and A. Faraone, "Antenna Requirements for Software Defined and Cognitive Radios," *Proceedings of the IEEE*, Vol. 100, No. 7, pp. 2262-2270, July 2012.
- [35] D. Caratelli, R. Cicchetti, and A. Faraone, "Exact Closed-Form Expression of the Electromagnetic Field Excited by a Uniform Current Distribution Lying on a Cartesian Quadrant," *IEEE Transactions on Antennas and Propagation*, Vol. 61, No. 4, pp. 2142-2155, April 2013.
- [35] R. Cicchetti, A. Faraone, G. Orlandi, and D. Caratelli, "Real-Argument Incomplete Hankel Functions: Accurate and Computationally Efficient Integral Representations and Their Asymptotic Approximants," *IEEE Transactions on Antennas and Propagation*, Vol. 63, No. 6, pp. 2751-2756, June 2015.
- [36] R. Cicchetti, A. Faraone, E. Miozzi, R. Ravanelli, and O. Testa, and D. Caratelli, "A High-Gain Mushroom-Shaped Dielectric Resonator Antenna for Wideband Wireless Applications," *IEEE Transactions on Antennas and Propagation*, Vol. 64, No. 7, pp. 2848-2861, July 2016.
- [37] R. Cicchetti, A. Faraone and O. Testa, "Energy-Based Representation of Multiport Circuits and Antennas Suitable for Near- and Far-Field Syntheses," in *IEEE Transactions on Antennas and Propagation*, vol. 67, no. 1, pp. 85-98, Jan. 2019, doi: 10.1109/TAP.2018.2876728.
- [38] R. Cicchetti, A. Faraone and O. Testa, "Near Field Synthesis Based on Multi-Port Antenna Radiation Matrix Eigenfields," in *IEEE Access*, vol. 7, pp. 62184-62197, 2019, doi: 10.1109/ACCESS.2019.2912305.
- [39] D. Caratelli, R. Cicchetti, V. Cicchetti, O. Testa and A. Faraone, "Electromagnetic Scattering from Truncated Thin Cylinders: An Approach Based on the Incomplete Hankel Functions and Surface Impedance Boundary Conditions," 2019 Photonics & Electromagnetics Research Symposium - Spring (PIERS-Spring), Rome, Italy, 2019, pp. 1739-1742, doi: 10.1109/PIERS-Spring46901.2019.9017281.
- [40] R. Cicchetti, V. Cicchetti, A. Faraone and O. Testa, "Analysis of Thin Truncated Cylinder Scatterers Using Incomplete Hankel Functions and Surface Impedance Boundary Conditions," in *IEEE Access*, vol. 8, pp. 72997-73004, 2020, doi: 10.1109/ACCESS.2020.2986930.

TECHNICAL REPORTS

- [1] P. Baradat, P. Bernardi, R. Cicchetti, P. Cossard, A. Faraone, J. Y. Fourniols, N. Fragnol, C. Garres, J. Seillé, "European Space Agency study on EMC for Long Duration Missions," European Space Agency (ESA) Contract # 9777/92/NL/PB, *Tech. Note 1* (Sept. 1994), *Tech. Note 2* (Dec. 1994), *Final Report* (June 1995). **ESA CONFIDENTIAL**.
- [2] C. Di Nallo, A. Faraone, and G. Bit-Babik, "Electrically small antenna with switched reactive loads", Technical Report for Antenna Initiative Research Contract, May 2004. **MOTOROLA CONFIDENTIAL**.
- [3] C. Di Nallo, J. Svirgelj, A. Faraone, and G. Bit-Babik, "Trade study report on tunable antenna technologies," Technical Report for Antenna Initiative Research Contract, November 2004. **MOTOROLA CONFIDENTIAL**.
- [4] A. Faraone (*ad-hoc team convener*), G. Bit-Babik, T. Harrington, H. Heinrich, J. Keshvari, T. Onishi, J-K. Pack, J. Pledl, J. Prats, M. Wood, P. Zollman, "IEC 62630 Ed.1: Guidance for evaluating exposure from multiple EM sources," Technical Report issued by the International Electrotechnical Commission, Technical Committee 106 (*Methods for the assessment of electric, magnetic and electromagnetic fields associated with human exposure*), Working Group 4.

CONFERENCE PRESENTATIONS

- [1] P. Bernardi, R. Cicchetti, and A. Faraone, "Analisi Full-Wave di un Gap Asimmetrico tra Linee a Microstriscia Troncate," *Atti della X Riunione Nazionale di Elettromagnetismo*, pp. 313-316, Cesena, Italy, Sept. 21-24, 1994 (*in Italian*).
- [2] P. Bernardi, R. Cicchetti, and A. Faraone, "EMC/EMI Modelling in Planar Structures Using the Spectral Domain Approach," *Proc. COST 243 Workshop*, pp. 78-84, Hamburg, Germany, June 8-9, 1995.
- [3] P. Bernardi, R. Cicchetti, and A. Faraone, "A Full-Wave Circuitual Model for the Prediction of the Disturbances Induced in MIC Interconnects," *Proc. Progress in Electromagnetics Research Symposium (PIERS '95)*, p. 705, Seattle, USA, July 24-28, 1995.
- [4] L. Inzoli, J. Seillé, N. Fragnol, C. Garres, J. Y. Fourniols, P. Bernardi, R. Cicchetti, and A. Faraone, "Modelling of Emission and Susceptibility in Electronic Equipment Interconnected Through Multiconductor Lines," *Proc. International Conference on Electromagnetics for Advanced Applications (ICEAA 95)*, pp.93-96, Torino, Italy, Sept. 12-15, 1995.
- [5] P. Bernardi, R. Cicchetti, and A. Faraone, "Frequency Behaviour of a Planar Interconnecting Line with a Gridded Ground Plane," *Proc. International Conference on Electromagnetics for Advanced Applications (ICEAA 95)*, pp. 125-127, Torino, Italy, Sept. 12-15, 1995.
- [6] P. Bernardi, R. Cicchetti, and A. Faraone, "Utilizzazione di Schermi Grigliati nella Realizzazione di Sistemi di Interconnessione in Tecnologia Planare: Prestazioni e Problematiche EMC," *Atti della 96^a Riunione Annuale AEI*, pp. 183-187, Roma, Italy, Sept. 24-27, 1995 (*in Italian*).
- [7] P. Bernardi, R. Cicchetti, and A. Faraone, "Design-Oriented Full-Wave Modeling of Passive MMIC Structures," *Proc. International Workshop on Millimeter Waves*, pp. 201-203, Orvieto, Italy, April 11-12, 1996.
- [8] R. Cicchetti and A. Faraone, "Dyadic Green's Function for Planar Anisotropic Uniaxial Substrates: Theory and Applications", *Proc. Progress in Electromagnetics Research Symposium (PIERS '96)* (invited paper), p. 414, Innsbruck, Austria, July 8-12, 1996.
- [9] A. Faraone and R. Cicchetti, "Computational Techniques for an Efficient Spectral Domain Analysis of Planar Structures", *Proc. XXV URSI General Assembly*, p. 107, Lille, France, Aug. 28-Sept. 5, 1996.
- [10] Q. Balzano, P. Bernardi, R. Cicchetti, and A. Faraone, "Planar Antennas for Portable Telephones: Performance and Interaction Characteristics", *Proc. XXV URSI General Assembly* (invited paper), p. 657, Lille, France, Aug. 28-Sept. 5, 1996.
- [11] L. Inzoli, C. Garres, J. Seillé, P. Baradat, P. Cossard, P. Bernardi, R. Cicchetti, and A. Faraone, "Simulation de configuration de mesures de mode rayonné au niveau équipement," *Proc. 8^{ème} Colloque International et Exposition sur la Compatibilité Electromagnétique (CEM 1996)*, pp. 101-105, Lille, France, Sept. 2-5, 1996 (*in French*).
- [12] P. Bernardi, R. Cicchetti, and A. Faraone, "Guiding and Radiation Characteristics of Planar Interconnecting Lines in Gridded Ground Structures", *Proc. EMC'96 ROMA - International Symposium on Electromagnetic Compatibility*, pp. 602-606, Roma, Italy, Sept. 17-20, 1996.
- [13] Q. Balzano, P. Bernardi, R. Cicchetti, and A. Faraone, "Una Classe di Antenne Planari Adatte alla Telefonia Cellulare: Prestazioni e Problematiche di Compatibilità Elettromagnetica", *Atti della XI Riunione Nazionale di Elettromagnetismo*, pp. 751-754, Firenze, Italy, Oct. 1-4, 1996 (*in Italian*).
- [14] P. Bernardi, R. Cicchetti, and A. Faraone, "Full-Wave EMI Modeling in Planar Microwave Integrated Circuits for EMC Prediction", *Proc. Partnership for Peace Symposium on Electromagnetic Compatibility*, Florence-San Miniato, Italy, Oct. 23-25, 1996.
- [15] P. Bernardi, R. Cicchetti, A. Faraone, and R. Ravanelli, "Antennas for Wideband Wireless LANs Operating at Millimeter Wave," *Proc. Commsphere 97*, Lausanne, Switzerland, February 11-14, 1997.

- [16] P. Bernardi, R. Cicchetti, and A. Faraone, "A Full-Wave Characterization of Gridded Ground Interconnecting Structures", *Proc. Progress in Electromagnetics Research Symposium (PIERS '97)* (invited paper), p. 646, Cambridge, MA, July 7-11, 1997.
- [17] P. Bernardi, R. Cicchetti, and A. Faraone, "Dyadic Green's Function Formulation Applied to the EMC/EMI Modeling in Planar Circuits," *Proc. URSI North American Conf.*, Montreal, Canada, July 13-17, 1997.
- [18] A. Faraone, "Results of the IEEE SCC-34 sphere/dipole experiment," IEEE SCC-34/ SC-2 Meeting in San Diego, CA, Dec. 3-4, 1997.
- [19] A. Faraone, "Experimental dosimetry in a sphere of simulated brain tissue near a half-wave dipole antenna," COST 244 Workshop, Trento, Italy, Dec. 12-13, 1997.
- [20] A. Faraone, D. Simunic, and Q. Balzano, "Experimental dosimetry in a Sphere of Simulated Brain Tissue Near a Half-Wave Dipole Antenna," *Proc. IEEE International Symposium on Electromagnetic Compatibility*, pp. 906-911, Denver, CO, August 23-28, 1998.
- [21] Q. Balzano and A. Faraone, "High Efficiency Antennas for Cellular Phones," *Proc. Workshop on "Technical Aspects and Human Protection in Mobile Communication Systems" at EMC'98 ROMA - International Symposium on Electromagnetic Compatibility* (invited paper), Rome, Italy, Sept. 14-18, 1998.
- [22] A. Faraone and Q. Balzano, "Estimation of the Average Power Density in the Vicinity of Cellular Base Station Antennas," *Motorola Antenna Symposium*, Oct. 7-8, 1998.
- [23] A. Faraone, "Overview of the IEEE SCC-34/SC-2 Activities," (invited talk) 1st CEPHOS Meeting, Rome, Italy, Oct. 16-17, 1998.
- [24] A. Faraone, R. Tay, R. Cicchetti, M. Swicord, C.K. Chou, and Q. Balzano, "A System for Studying the Effects of Long-Term Exposure of Mice to EM Radiation," *Proc. Progress in Electromagnetics Research Symposium (PIERS '99)*, p. 432, Taipei, TAIWAN, March 22-26, 1999.
- [25] A. Faraone, R. Cicchetti, M. Ballen, M. Kanda, J. J. Morrissey, M. L. Swicord, C. K. Chou, and Q. Balzano, "A System for Whole Body Exposure of Mice To 900 MHz EM Fields," *Proc. 21st BEMS Annual Meeting*, pp. 62-63, Long Beach, CA, June 20-24, 1999.
- [26] D. O. McCoy, A. Faraone, C. K. Chou, and Q. Balzano, "A Method for the Assessment of the Spatial Resolution of Miniaturized E-Field Probes Used in SAR Measurements," *Proc. 21st BEMS Annual Meeting*, p. 228, Long Beach, CA, June 20-24, 1999.
- [27] Q. Balzano, A. Faraone, and D. O. McCoy, "A Method for the Assessment of the Isotropy of Miniaturized E-Field Probes Used in SAR Measurements," *Proc. 21st BEMS Annual Meeting*, pp. 173-174, Long Beach, CA, June 20-24, 1999.
- [28] Q. Balzano and A. Faraone, "Human Exposure to Cellular Base Station Antennas," *Proc. IEEE International Symposium on Electromagnetic Compatibility*, pp. 924-927, Seattle, WA, August 2-6, 1999.
- [29] A. Faraone, D. O. McCoy, C. K. Chou, and Q. Balzano, "Methods for the Characterization of Electric Field Probes Employed in the Assessment of SAR Compliance of Wireless Devices," *Proc. XXVI URSI General Assembly*, p. 849, Toronto, Canada, Aug. 13-21, 1999.
- [30] Q. Balzano and A. Faraone, "Estimation of the Average Power Density in the Assessment of the Human Exposure to Cellular Base Station Antennas," (invited lecture) *Proc. ICECOM'99*, pp. 79-81, Dubrovnik, Croatia, Oct. 11-13, 1999.
- [31] B. W. Wilson, A. Faraone, D. Sheen, M. L. Swicord, W. Park, J. J. Morrissey, L. E. Anderson, and J. Creim, "Space-Efficient System for Small-Animal Whole Body Microwave Exposure at 1.6 GHz," *Proc. 22nd BEMS Annual Meeting*, pp. 69-70, Munich, Germany, June 11-16, 2000.
- [32] M. Kanda, Q. Balzano, P. Russo, and A. Faraone, "Effects of Ear Connection Modeling on the Electromagnetic Energy Absorption in a Human Head Phantom Exposed to a Dipole Antenna Field at 835 MHz," *Proc. 22nd BEMS Annual Meeting*, pp. 119-120, Munich, Germany, June 11-16, 2000.
- [33] P. Russo, A. Faraone, and Q. Balzano, "Numerical Dosimetry of the Ferris-Wheel Mice Exposure System at 900 MHz and 1800 MHz," *Proc. 22nd BEMS Annual Meeting*, pp. 137-138, Munich, Germany, June 11-16, 2000.
- [34] A. Faraone, M. Ballen, M. Kanda, J. J. Morrissey, R. Cicchetti, M. L. Swicord, C. K. Chou, and Q. Balzano, "Experimental Dosimetry of the Ferris-Wheel Mice Exposure System at 900 MHz," *Proc. 22nd BEMS Annual Meeting*, p. 138, Munich, Germany, June 11-16, 2000.
- [35] J. J. Morrissey, M. L. Swicord, A. Faraone, M. Schellinger, A. Dietrich, A. Gessner, and Q. Balzano, "Development of a Dosimeter Phone for Dose Validation in Support of Ongoing Epidemiologic Studies," *Proc. 22nd BEMS Annual Meeting*, p. 140, Munich, Germany, June 11-16, 2000.
- [36] R. Cicchetti and A. Faraone, "A Class of Surface Boundary Conditions for Complex Structures," *Proc. USNC/URSI National Radio Science Meeting*, Salt Lake City, UT, July 16-21, 2000.

- [37] A. Faraone, D. O. McCoy, C. K. Chou, and Q. Balzano, "Characterization of Miniaturized E-Field Probes for SAR Measurements," *Proc. IEEE IEEE International Symposium on Electromagnetic Compatibility*, pp. 749-754, Washington, DC, Aug. 21-25, 2000.
- [38] Q. Balzano, C. K. Chou, and A. Faraone, "Dosimetry of Cellular Phones: from the Beginnings to the Current Developments," (invited lecture), 1st Seminar on "Exposição Ambiental e Ocupacional a Campos Eletromagnéticos," Sao Paulo, Brazil, Aug. 31-Sept. 1, 2000.
- [39] A. Faraone, "Human Exposure to Radio Base Stations - A Review," (invited lecture at the Workshop on "Progress in Dosimetric studies for cellular mobile system exposure"), *Proc. 2000 European EMC Symposium*, Bruges, Belgium, Sept. 11-15, 2000.
- [40] G. Bit-Babik, C.K. Chou, A. Faraone, and Q. Balzano, "FDTD Estimation of SAR in the Human Head and Body Due to Exposure of Handheld Mobile Phone with Hands-Free Accessories," *Proc. 2001 Bioelectromagnetics Society Meeting*, St. Paul, MN, June 10-14, 2001.
- [41] A. Faraone and D. O. McCoy, "The Folded Patch Omni-Directional Antenna," *Proc. 2001 IEEE AP-S International Symposium*, pp. 712-715, Boston, MA, July 9-13, 2001.
- [42] A. Faraone and Q. Balzano, "Wide-Band Patch Antennas with Asymmetric Microstrip Excitation," *Proc. 2001 USNC/URSI International Radio Science Meeting*, p. 73, Boston, MA, July 9-13, 2001.
- [43] Q. Balzano and A. Faraone, "Peak and Average RF Safety Compliance Levels near Radio Base Station Antennas - Prediction Formulas and Numerical Validation," *Proc. IEEE International Symposium on Electromagnetic Compatibility*, pp. 780-785, Montreal, Canada, Aug. 13-17, 2001.
- [44] G. Bit-Babik, A. Faraone, M. Ballen, and C. K. Chou, "Sensitivity of the spatial-average peak SAR to the dielectric parameters of media used for compliance testing in the frequency range 0.3 - 3 GHz," *Proc. 2002 IEEE AP-S International Symposium*, pp. 722-725, San Antonio, TX, June 16-21, 2002.
- [45] G. Bit-Babik, A. Faraone, and C. K. Chou, "Compliance distance of bystanders from mobile antennas at frequencies from 30 MHz to 900 MHz," *Proc. 2002 Bioelectromagnetics Society Meeting*, Quebec City, QC, June 23-27, 2002.
- [46] M. Kanda, A. Gessner, A. Faraone, and C. K. Chou, "Impact of the International Standardization of SAR Compliance Testing," *Proc. XXVII URSI General Assembly*, p. ***, Maastricht, The Netherlands, Aug. 17-24, 2002.
- [47] Q. Balzano, R. Cicchetti, and A. Faraone, "Prediction Formulas for RF Energy Compliance Assessments in the Vicinity of Cellular Basestation Antennas," *Proc. XXVII URSI General Assembly*, p. ***, Maastricht, The Netherlands, Aug. 17-24, 2002.
- [48] A. Faraone, "Experimental and Analytical Techniques for Radio Base-Station Exposure Assessment," (invited lecture at the Workshop on *RF and MW Environment and Human Exposure Evaluation*), *Proc. EMC Europe 2002 Symposium*, Sorrento, Italy, Sept. 9-13, 2002.
- [49] G. Bit-Babik and A. Faraone, "Compliance Distance of Bystanders from Mobile Antennas at Frequencies from 30 MHz to 900 MHz," *Proc. EMC Europe 2002 Symposium*, Sorrento, Italy, Sept. 9-13, 2002.
- [50] G. Bit-Babik, C. K. Chou, A. Faraone, A. Gessner, M. Kanda, Q. Balzano. "Exposure Levels from Hands-Free Accessories Compared to Mobile Handset alone." *Proc. 2nd International Workshop on Biological Effects of Electromagnetic Fields*, Rhodes, Greece, Oct. 7-11, 2002.
- [51] A. Faraone, S. Chebrolu, W. Luengas, M. Ballen, G. Bit-Babik, M. Kanda, T. Babij, M. Swicord, and C. K. Chou, "Dosimetry of the Ferris-Wheel Mouse Exposure System," *Proc. 25th Annual Meeting of the Bioelectromagnetics Society (BEMS 2003)*, p. 27, Maui, Hawaii, June 22-27, 2003.
- [52] C. Di Nallo and A. Faraone, "Effect of Amplitude Modulation of the CDMA Signal on SAR Measurements," *Proc. 25th Annual Meeting of the Bioelectromagnetics Society (BEMS 2003)*, p. 233, Maui, Hawaii, June 22-27, 2003.
- [53] G. Bit-Babik, A. Faraone, and C. K. Chou, "Calculations of Compliance Distance of Bystanders from Mobile Antennas at Frequencies from 150 MHz to 900 MHz Using a Heterogeneous Human Model," *Proc. 25th Annual Meeting of the Bioelectromagnetics Society (BEMS 2003)*, p. 30, Maui, Hawaii, June 22-27, 2003.
- [54] G. Bit-Babik, D. Caratelli, R. Cicchetti, and A. Faraone, "A New Class of Interdigital Capacitors for Planar Integrated Circuits," *Proc. 2003 IEEE AP-S International Symposium and USNC/CNC/URSI National Radio Science Meeting*, p. 582, Columbus, OH, June, 22-27, 2003.
- [55] A. Faraone, "Prediction Formulas for BTS Exposure," *COST 281 Workshop on Basestation EME*, Vienna, Austria, Aug. 26-27, 2003.
- [56] A. Bijamov, A. Razmadze, L. Shoshiashvili, R. Zaridze, G. Bit-Babik, and A. Faraone, "Advanced Electro-Thermal Analysis for the Assessment of Human Exposure in the Near-Field of Electromagnetic Sources," *Proc. International Conference on Electromagnetics for Advanced Applications (ICEAA 03)*, paper no. 277, Torino, Italy, Sept. 8-12, 2003.

- [57] A. Bijamov, A. Razmadze, L. Shoshiashvili, R. Zaridze, G. Bit-Babik, and A. Faraone, "Software for the Electro-Thermal Simulation of the Human Exposed to the Mobile Antenna Radiation," *Proc. DIPED-2003*, pp. 173-176, Lviv, Ukraine, Sept. 23-25, 2003.
- [58] A. Faraone, S. Chebrolu, W. Luengas, M. Ballen, G. Bit-Babik, M. Kanda, T. Babij, M. Swicord, and C. K. Chou, "Dosimetry of a 40-Mice 900 MHz Ferris-Wheel Exposure System," *Proc. 6th International Congress of the European Bioelectromagnetics Association (EBEA 2003)*, p. 37, Budapest, Hungary, Nov. 13-15, 2003.
- [59] D. Caratelli, R. Cicchetti, and A. Faraone, "A Full-Wave Analysis of a Class of Planar Microstrip Components for Wireless Communication Applications," *Proc. PIERS 2004*, p. *, Pisa, Italy, March 28-31, 2004..
- [60] G. Bit-Babik, A. Faraone, C. K. Chou, M. Swicord, "Whole Body Average SAR Computed in a Child Body at Frequencies from 1 GHz to 6 GHz," *Proc. 26th Annual Meeting of the Bioelectromagnetics Society (BEMS 2004)*, Washington, DC, June 21-24, 2004.
- [61] G. Bit-Babik, C. Di Nallo, and A. Faraone, "Multimode Dielectric Resonator Antenna of Very High Permittivity," *IEEE Antennas and Propagation Society International Symposium and URSI National Radio Science Meeting*, Monterey, CA, June 20-25, 2004, pp. 1383 – 1386.
- [62] Q. Balzano, R. Cicchetti, and A. Faraone, "Methodologies for EME compliance assessments near radio base stations," *IEEE MTT-S Symposium (invited presentation at the Workshop on "Present Challenges in Numerical Dosimetry")*, Forth Worth, TX, June 6-11, 2004.
- [63] A. Faraone, C. Di Nallo, G. Bit-Babik, and J. Svirgel, "Antenna Technologies for the Software Defined Radio," *Antenna Systems 2004*, Denver, CO, October 6-7, 2004.
- [64] A. Faraone, C. Di Nallo, and G. Bit-Babik, "SDR Enabling Antenna Technologies," *2004 Software Defined Radio Technical Conference and Product Exposition* November 15-18, 2004 - Phoenix, Arizona.
- [65] G. Bit-Babik, A. Faraone, C.K. Chou, and M. Swicord, "Computational comparison of the SAM phantom to anatomically correct models of the human head," *Proc. Bioelectromagnetics 2005 (BioEM 2005)*, Dublin, June 20-24, 2005.
- [66] M. Ali, M. G. Douglas, A. Faraone, C-K Chou, "Upper bounds of SAR for dipole antennas in the 300-3000 MHz frequency range," *Proc. Bioelectromagnetics 2005 (BioEM 2005)*, Dublin, June 20-24, 2005.
- [67] C. Di Nallo and A. Faraone, "The Folded Inverted Conformal Antenna (FICA) for Multi-band Cellular Phones," *invited presentation in the Special Session on Advances in Platform Integrated (Embedded) Antennas for Mobile Wireless Applications*, *Proc. 2005 IEEE Antennas and Propagation Society International Symposium and URSI National Radio Science Meeting*, Washington, DC, July 3-8, 2005, vol. 4B, pp. 52-55.
- [68] R. Zaridze, N. Gritsenko, G. Kajaia, E. Nikolaeva, A. Razmadze, L. Shoshiashvili, A. Bijamov, G. Bit-Babik, and A. Faraone, "Electro-Thermal Computational Suite for Investigation of RF Power Absorption and Associated Temperature Change in Human Body," *Proc. 2005 IEEE Antennas and Propagation Society International Symposium and URSI National Radio Science Meeting*, Washington, DC, July 3-8, 2005, vol. 2B, pp. 796-799.
- [69] C. Di Nallo, A. Faraone, T. Galia, and M. Maddaleno, "Principles and applications of the Folded Inverted Conformal Antenna (FICA) technology," *Proc. International Conference on Electromagnetics for Advanced Applications (ICEAA '05)*, paper no. 287, Torino, Italy, Sept. 12-16, 2005.
- [70] G. Bit-Babik, C. Di Nallo, M. Richard, and A. Faraone, "Handset antennas for mobile to satellite communication with enhanced coverage in scattering environment," *invited paper at the EMC EUROPE Workshop "Electromagnetic Compatibility of Wireless Systems"* Rome, Italy, Sept. 19-21, 2005.
- [71] J. J. Morrissey and A. Faraone, "Wireless communication systems and EMC in Hospital Environments," *invited paper at the EMC EUROPE Workshop "Electromagnetic Compatibility of Wireless Systems"* Rome, Italy, Sept. 19-21, 2005.
- [72] A. Bijamov, G. Bit-Babik, A. Faraone, A. Razmadze, L. Shoshiashvili, and R. Zaridze, "Application of computational dosimetry for SAR compliance assessments of wireless transceivers," *Proc. XXVIII URSI General Assembly*, New Delhi, India, Oct. 23-29, 2005.
- [73] M. Ali, M.G. Douglas, A.T.M. Sayem, A. Faraone, and C-K. Chou, "SAR upper bounds for linear antennas in the frequency range of 300 MHz TO 6000 MHz," *Proc. XXVIII URSI General Assembly*, New Delhi, India, Oct. 23-29, 2005.
- [74] G. Bit-Babik, A. Faraone, and K. H. Joyner, "Computational SAR compliance process for mobile radios," *Proc. Australian Radiation Protection Conference 2005*, Melbourne, Australia, Nov. 13-16, 2005.
- [75] G. Bit-Babik, A. Faraone, C.K. Chou, M. Swicord, and V. Anderson, "Spatially averaged SAR relationship to thermal response due to RF energy deposition in lossy heterogeneous medium," *Proc. 28th Annual Meeting of the Bioelectromagnetics Society (BEMS 2006)*, pp. 56-57, Cancun, Mexico, June 11-15, 2006.
- [76] G. Bit-Babik, M. Douglas, A. Faraone, and C.K. Chou, "Comparison of SAR in the Specific Anthropomorphic Mannequin against the ICNIRP limit in the users head," *Proc. 28th Annual Meeting of the Bioelectromagnetics Society (BEMS 2006)*, pp. 34-35, Cancun, Mexico, June 11-15, 2006.

- [77] A. Faraone and C. Di Nallo, "Mobile phone multi-band antenna employing a volume-reuse concept," Proc. 2006 IEEE Antennas and Propagation Society International Symposium and URSI National Radio Science Meeting, Albuquerque, NM, July 9-14, 2006, paper # 406.5, p. 561.
- [78] R. S. Zaridze, D. G. Kakulia, A. G. Razmadze, L. S. Shoshiashvili, D. V. Mazmanov, L. S. Manukyan, N. G. Jejelava, A. Bijamov, G. Bit-Babik, and A. Faraone, "Assessment of Human Exposure to RF Energy in Some Real Scenarios," Proc. 2006 IEEE Antennas and Propagation Society International Symposium and URSI National Radio Science Meeting, Albuquerque, NM, July 9-14, 2006, paper # 160.9, pp. 729-732.
- [79] D. Caratelli, R. Cicchetti, and A. Faraone, "Circuitual and electromagnetic performances of planar microstrip spiral inductors for wireless applications," Proc. 2006 IEEE Antennas and Propagation Society International Symposium and URSI National Radio Science Meeting, Albuquerque, NM, July 9-14, 2006, paper # 203.6, pp. 837-840.
- [80] A. Faraone and C-K. Chou, "Overview on select EME and EMI standards related to mobile wireless transmitters," Proc. EMC Europe 2006 Symposium, Sept. 4-8, 2006, Barcelona, Spain, pp. 390-395.
- [81] J. J. Morrissey, A. Faraone, and Q. Balzano, "EMC management of wireless transceivers in EMI sensitive environments," Proc. EMC Europe 2006 Symposium, Sept. 4-8, 2006, Barcelona, Spain, pp. 441-452.
- [82] D. Caratelli, R. Cicchetti, G. Bit-Babik, and A. Faraone, "Un'antenna a patch sagomata ad E con slot a zig-zag per applicazioni wireless a larga banda," Proc. XVI Riunione Nazionale di Elettromagnetismo, Sept. 18-21, Genova, Italy, pp. 65-68 (in Italian).
- [83] L. Shoshiashvili, A. Razmadze, N. Jejelava, R. S. Zaridze, G. Bit-Babik, and A. Faraone, "Validation of Numerical Bioheat FDTD Model", Proc. XI International Seminar/Workshop on Direct and Inverse Problems of EM and Acoustic Wave Theory (DIPED), October 11-13, 2006, Tbilisi, Georgia, pp 201-204.
- [84] A. Faraone, G. Bit-Babik, and R. S. Zaridze, "Assessment of Human Exposure to Realistic Radio-Frequency Sources by Means of Analytical and Computational Methodologies," Proc. European Conference on Antennas and Propagation (EuCAP 2006), November 6-10, 2006, Nice, France, # 432855.
- [85] A. Faraone, G. Bit-Babik, and R. S. Zaridze, "Standardization of the Computational Methodology for Assessing Human Exposure to RF Emitters Inside and Nearby Automotive Vehicles," Proc. 2007 ACES Conference, March 19-23, 2007, Verona, Italy.
- [86] A. Faraone, "Computational Electromagnetics Applied to Portable Antenna Research". Keynote speech at the 2007 Applied Computational Electromagnetics Society (ACES) Conference, March 19-23, 2007, Verona, Italy.
- [87] I. Inyang, G. Benke, R. McKenzie, G. Bit-Babik, A. Faraone, and M. Abramson, "Determination of Laterality of Mobile Phone Use," Proc. International EMF Conference 2007 (Electromagnetic Fields, Bioeffects Research, Medical Applications, and Standards Harmonization), p. 160, Kuala Lumpur, Malaysia, June 4-6, 2007.
- [88] G. Bit-Babik, A. Faraone, C-K. Chou, A. Razmadze, and R. Zaridze, "Correlation between Locally Averaged SAR Distribution and Related Temperature Rise in Human Body Exposed to RF Field," Proc. 29th Annual Meeting of the Bioelectromagnetics Society (BEMS 2007), pp. XX-YY, Kanazawa, Japan, June 11-15, 2007.
- [89] M. Douglas, G. Bit-Babik, J. Nadakuduti, A. Faraone, and C-K. Chou, "Modeling of SAR in the User for Body-Worn Wireless Devices," Proc. 29th Annual Meeting of the Bioelectromagnetics Society (BEMS 2007), pp. XX-YY, Kanazawa, Japan, June 11-15, 2007.
- [90] C. Di Nallo, A. Faraone, and G. Bit-Babik, "Wideband Antenna Using non-Foster Loading Elements," Proc. 2007 IEEE Antennas and Propagation Society International Symposium, Honolulu, HI, June 10-15, 2007, paper # 334.7, pp. ***.
- [91] C. Di Nallo, I. Szini, and A. Faraone, "The Enhanced Bandwidth Folded Inverted Conformal Antenna (EB FICA) for Multi-Band Cellular Handsets," Proc. 2007 IEEE Antennas and Propagation Society International Symposium, Honolulu, HI, June 10-15, 2007, paper # 340.6, pp. ***.
- [92] G. Bit-Babik, C. Di Nallo, J. Svigelj, and A. Faraone, "Small Wideband Antenna with Non-Foster Loading Elements," (invited) Proc. International Conference on Electromagnetics for Advanced Applications (ICEAA '07), paper no. ###, Torino, Italy, Sept. 17-21, 2007.
- [93] A. Faraone, C. Di Nallo, G. Bit-Babik, S. L. Ooi, and M. Pascolini, "Enabling Antenna Technologies for the Software Definable Radio," (invited) Proc. European Conference on Antennas and Propagation (EuCAP 2007), November 11-16, 2007, Edinburgh, UK, # 919.
- [94] D. Kakulia, L. Manukyan, M. Prishvin, V. Jeladze, R. Zaridze, G. Bit-Babik, and A. Faraone, "The Vascular Structure Model for Improved Numerical Simulations of Thermal Response of Human Tissue Exposed to RF Fields," Proc. 30th Annual Meeting of the Bioelectromagnetics Society (BEMS 2008), pp. XX-YY, San Diego, CA, June 9-12, 2008.
- [95] G. Bit-Babik, J. Nadakuduti, M. Douglas, A. Faraone, and C-K. Chou, "Computational Comparison of the SAM Phantom to Anatomically Correct Models of the Human Head at 300, 450, 2450, 3500, and 5800 MHz," Proc. 30th Annual Meeting of the Bioelectromagnetics Society (BEMS 2008), pp. XX-YY, San Diego, CA, June 9-12, 2008.

- [96] J. Nadakuduti, A. V. Gessner, M. G. Douglas, C. Di Nallo, A. Faraone, and C-K. Chou, "Response of Dosimetric Probes to Signals in Emerging Wireless Technologies," *Proc. 30th Annual Meeting of the Bioelectromagnetics Society (BEMS 2008)*, pp. XX-YY, San Diego, CA, June 9-12, 2008.
- [97] A. Faraone, G. Bit-Babik, L. Ponce de Leon, and S. L. Ooi, "Antenna System for GPS Radiation Pattern Control on Portable Radios," *Proc. 2008 IEEE Antennas and Propagation Society International Symposium*, San Diego, CA, July 5-12, 2008, paper # 530.4, pp. 1-4.
- [98] G. Bit-Babik and A. Faraone, "Antenna system improvement to control GPS radiation pattern on portable radios," *Proc. 13th International Seminar/Workshop on Direct and Inverse Problems of Electromagnetic and Acoustic Wave Theory (DIPED 2008)*, Tbilisi, Georgia, Sept. 22-25, 2008, pp. 92-94.
- [99] A. Faraone, M. G. Douglas, and G. W. Grube, "Method of Ensuring SAR Compliance for Multi-Mode and MIMO Handheld Wireless Communication Devices While Optimizing Link-Margin," *Proc. XXIX URSI General Assembly*, Chicago, IL, Aug. 7-16, 2008.
- [100] G. Bit-Babik, A. Faraone, J. Keshvari, T. Onishi, J-K. Pack, J. Pledl, J. Prats M. Wood, P. Zollman, "Conservative Evaluation of Combined Exposure from Multiple RF Sources (100 KHz - 300 GHz)," *Proc. 31st Annual Meeting of the Bioelectromagnetics Society (BEMS 2009)*, P-90, Davos, Switzerland, June 14-19, 2009.
- [101] M. Prishvin, D. Kakulia, R. Zaridze, G. Bit-Babik, and A. Faraone, "Modified Bio-Heat Equation According to New Vascular System Model," *Proc. 31st Annual Meeting of the Bioelectromagnetics Society (BEMS 2009)*, P-36, Davos, Switzerland, June 14-19, 2009.
- [102] M. Prishvin, R. Zaridze, G. Bit-Babik, and A. Faraone, "Modified heat equation for thermal calculation on a realistic model," *Direct and Inverse Problems of Electromagnetic and Acoustic Wave Theory (DIPED) 2009*, 21-24 Sept. 2009, pp. 53 – 57.
- [103] A. Faraone and G. Bit-Babik, "Flip-phone GPS antenna with omni-directional coverage," *Proc. IEEE International Symposium on Antennas & Propagation and USNC/URSI National Radio Science Meeting*, Charleston, SC, June 1-5, 2009, paper # 308.4.
- [104] G. Bit-Babik, A. Faraone, and C. Di Nallo, "Low Profile Wideband Antenna," *Proc. IEEE International Symposium on Antennas & Propagation and USNC/URSI National Radio Science Meeting*, Charleston, SC, June 1-5, 2009, paper # 504.1.
- [105] A. Carta, C. Di Nallo, A. Faraone, G. Bit Babik, R. Stefanelli, S. Trincherro, and D. Trincherro, "Experimental Set-up for the Characterization and Calibration of SAR Probes in Presence of Digital Signals Modulated with Frequency Multiplexing," *EMF Bordeaux Event*, Bordeaux, France, May 26-29, 2010.
- [106] G. Cappelletti, D. Caratelli, R. Cicchetti, A. Faraone, and A. Yarovoy, "A Class of Antipodal Dipole Antennas for Wide-Band. Wireless Applications," *Proc. IEEE International Symposium on Antennas & Propagation and CNC/USNC/URSI Radio Science Meeting*, paper # 107.7, Toronto, CA, July 11-17, 2010.
- [107] A. Carta, A. Faraone, R. Stefanelli, S. Trincherro, D. Trincherro, "Analysis of SAR Probe Performance in Presence of Wideband Signals," *Proc. XXX URSI General Assembly*, paper KB-4, Istanbul, Turkey, Aug. 13-20, 2011.
- [108] P. S. Hall, P. Gardner, and A. Faraone, "Antennas for Software Defined Radio Handsets," *Proc. 2011 IEEE International RF and Microwave Conference (RFM 2011)*, pp. 175-177, Seremban, Malaysia, Dec. 12-14, 2011.
- [109] G. Bit-Babik and A. Faraone, "Standardization of SAR Simulation Techniques for RF Exposure Compliance in and Around Vehicles," *Proc. European Conference on Antennas and Propagation (EuCAP 2013)*, April 8-12, 2013, Gothenburg, Sweden.
- [110] L. J. Foged, L. Scialacqua, G. Bit-Babik, A. Faraone, J. Estrada, and J. Luc, "Experimental near-field method for validating simulation antenna models," *Proc. 2015 IEEE International Symposium on Antennas and Propagation & USNC/URSI National Radio Science Meeting*, pp. 1840-1841, July 19-24 2015, Vancouver, Canada.
- [111] G. Bit-Babik and A. Faraone, "Protocol and methods for RF exposure evaluation of portable wireless charging systems," *Proc. Joint Annual Meeting of the Bioelectromagnetics Society and the European BioElectromagnetics Association (BIOEM 2016)*, S2-3, Ghent, Belgium, June 5-10, 2016.