

CURRICULUM VITAE

PERSONAL INFORMATION

Name/Surname **Gianluca Gennarelli**
Address Viale Italia 409, 83100, Avellino (AV), Italy.
Phone Numbers Office: (+39) 081 5707999 Mobile: (+39) 328 8931105
E-mail gennarelli.g@irea.cnr.it ggennarelli@unisa.it
Nationality Italian
Date of Birth Dec. 30, 1981

WORK EXPERIENCE

February 2012–today **Research Fellow** at the Institute for the Electromagnetic Sensing of the Environment (IREA), National Research Council of Italy, Napoli, Italy.

July 2010–January 2012 **Post-Doc Fellow** at D.I.E.I.I. (Department of Electronic and Computer Engineering), University of Salerno, Italy.
Lecturer for graduate courses in **Electronic Engineering** and **Computer Science Engineering** at University of Salerno.

April-May 2010 Research contract granted from D.I.E.I.I. in the context of the Project L.R. n. 5. Object: “Evaluation of the effects induced in biological tissues under CCEF (Capacitive Coupled Electric Field) exposure”. Project manager: Prof. Antonio Scaglione.

November 2006–March 2010 **PhD in Electrical and Computer Engineering**, University of Salerno.

EDUCATION

March 2010 **PhD in Electrical and Computer Engineering**, University of Salerno. PhD Dissertation: “*Uniform Asymptotic Physical Optics solutions for diffraction problems*”. Supervisor: Prof. Giovanni Riccio.

January 2007 Italian Engineering License

June 2006 Master of Science degree in **Electronic Engineering**, University of Salerno. Scholarship awarded, **110/110 cum laude**. Thesis: “*The application of optimal control to kinematic inversion of redundant manipulators*”. Supervisor: Prof. Pasquale Chiacchio.

July 2000 High School Degree in Scientific Studies

SCIENTIFIC ACTIVITY

RESEARCH FIELDS

- High frequency electromagnetic scattering;
- Near Field-Far Field (NF-FF) transformation techniques;
- Numerical techniques in electromagnetism (FDTD, FEM);
- Permittivity Measurements;
- Collaborative beamforming in wireless sensor networks.

PROFESSIONAL AFFILIATIONS AND ACTIVITIES

Reviewer for the international journals: *Journal Optical Society America A*, *Optics Express*, *IET Microwave Antennas and Propagation*, *IEEE Geoscience and Remote Sensing Letters*, *International Journal of Antennas and Propagation*, *Progress in Electromagnetic Research*, *Journal of Electromagnetic Waves and Applications*.

PUBLICATIONS

INTERNATIONAL JOURNAL PAPERS

- [1] **G.Gennarelli**, G.Riccio, "Useful solutions for plane wave diffraction by dielectric slabs and wedges", *International Journal of Antennas and Propagation* (in press).
- [2] **G.Gennarelli**, G.Riccio, "Time-domain diffraction by a right-angled penetrable wedge", *IEEE Trans. Antennas Propagation* (in press).
- [3] F. D'Agostino, F. Ferrara, C. Gennarelli, **G. Gennarelli**, R. Guerriero, M. Migliozi, "On the direct nonredundant near field – far field transformation in a cylindrical scanning geometry", *IEEE Antennas Propagation Magazine*, (in press).
- [4] **G.Gennarelli**, G.Riccio, "Plane wave diffraction by an obtuse-angled dielectric wedge", *Journal Optical Society America A*, Vol. 28, No. 4, pp. 627-632, 2011.
- [5] **G.Gennarelli**, G.Riccio, "A uniform asymptotic solution for the diffraction by a right-angled dielectric wedge", *IEEE Trans. Antennas Propagation*, Vol. 59, No. 3, pp. 898-903, 2011.
- [6] **G.Gennarelli**, G.Riccio, "Diffraction by a planar metamaterial junction with PEC backing", *IEEE Trans. Antennas Propagation*, Vol. 58, No. 9, pp. 2903-2908, 2010.
- [7] **G.Gennarelli**, G.Riccio, "Diffraction by a lossy Double-Negative metamaterial layer: A uniform asymptotic solution", *Progress in Electromagnetics Research Letters*, Vol. 13, pp. 173-180, 2010.
- [8] **G.Gennarelli**, G.Riccio, "A UAPO-based model for propagation prediction in microcellular environments", *Progress In Electromagnetics Research B*, Vol. 17, pp. 101–116, 2009.
- [9] **G.Gennarelli**, G.Riccio, "A UAPO-based solution for the scattering by a lossless double-negative metamaterial slab", *Progress in Electromagnetics Research M*, Vol. 8, pp. 207–220, 2009.
- [10] F.D'Agostino, F.Ferrara, C.Gennarelli, **G.Gennarelli**, R.Guerriero, "An effective NF–FF transformation with a hybrid cylindrical and bi-polar scanning", *Microwave and Optical Technology Letters*, Vol. 51, No. 3, 2009.
- [11] F.Ferrara, C.Gennarelli, **G.Gennarelli**, M.Migliozi, G.Riccio, "Scattering by truncated lossy layers: a UAPO-based approach", *Electromagnetics*, Vol. 27, No. 7, pp. 443-456, 2007.

NATIONAL JOURNAL PAPERS

- [1] C.Gennarelli, **G.Gennarelli**, "An accurate model for the backscattering by a loaded dihedral corner", *Atti della Fondazione Giorgio Ronchi*, LXVI, No. 4, pp. 457-465, 2011.

- [2] F.Ferrara, C.Gennarelli, **G.Gennarelli**, R.Guerriero, M.Migliozzi, “An experimental validation of a nonredundant NF–FF transformation technique with cylindrical scanning”, *Atti della Fondazione Giorgio Ronchi*, LXIV, No. 4, pp. 515-525, 2009.

CONFERENCE PAPERS

- [1] **G.Gennarelli**, G.Riccio, “Electromagnetic sensing for the monitoring of structures and infrastructures: a model for the diffraction by penetrable wedges”, *EGU General Assembly*, April 22-27, Vienne, 2012.
- [2] **G.Gennarelli**, G.Riccio, “Diffraction by a lossy 90° dielectric wedge”, *Advanced Electromagnetic Symposium*, April 16-19, Paris, 2012.
- [3] F.D’Agostino, F.Ferrara, C.Gennarelli, **G.Gennarelli**, R.Guerriero, M.Migliozzi, “Experimental validation of the direct NF-FF transformation with cylindrical scanning for long antennas”, *LAPC*, November 14-15, Loughborough, 2011.
- [4] **G.Gennarelli**, G.Riccio, “Diffraction of a pulsed electromagnetic plane wave by a right-angled dielectric wedge,” *LAPC*, November 14-15, Loughborough, 2011.
- [5] F.D’Agostino, F.Ferrara, C.Gennarelli, **G.Gennarelli**, R.Guerriero, M.Migliozzi, “Laboratory tests on the direct cylindrical NF-FF transformation for volumetrical AUTs”, *ICEAA’11*, September 12-17, 2011, Turin.
- [6] G.Riccio, **G.Gennarelli**, “Diffraction of an electric polarized wave by an obtuse-angled dielectric wedge: A UAPO solution”, *Proc. of EUCAP*, April 11-15, Rome, 2011.
- [7] **G.Gennarelli**, G.Riccio, “UAPO solution for the field diffracted by a metamaterial layer with PEC backing”, *Proc. of EUMC*, September 28-30, Paris, 2010.
- [8] **G.Gennarelli**, G.Riccio, “A solution for diffraction by a right-angled dielectric wedge”, *Proc. of PIERS*, July 5-8, Cambridge, USA, 2010 (selected on *PIERS On-line*, Vol. 6, No.8, 2010).
- [9] **G.Gennarelli**, G.Riccio, “Diffraction by a double-negative metamaterial layer with PEC Backing”, *Proc. of PIERS*, July 5-8, Cambridge, USA, 2010 (selected on *PIERS On-line*, Vol. 6, No.8, 2010).
- [10] **G.Gennarelli**, G.Riccio, “Scattering by planar junctions of metamaterial slabs”, *Proceedings of EUCAP*, Berlin, 2009.
- [11] **G.Gennarelli**, G.Riccio, “Scattering by lossless double negative metamaterial slabs”, *Proc. of PIERS*, 396-400, July 2-6, Cambridge, USA, 2008.
- [12] **G.Gennarelli**, G.Riccio, “UAPO based diffraction coefficients for lossless double-negative metamaterial slabs”, *Proc. of EUCAP*, November, Edinburgh, 2007.
- [13] F.D’Agostino, F.Ferrara, **G.Gennarelli**, M.Migliozzi and G.Riccio, “A model for predicting the scattering by a junction of three dielectric slabs”, *Proc. of IEEE Antennas and Propagation Society International Symposium*, June, Hawaii, 2007.

TECHNICAL REPORTS

- [1] P.Braca, **G.Gennarelli**, “A collaborative beamforming strategy based on consensus algorithms”, Fisciano, Salerno, September 2011.

EXPERIMENTAL ACTIVITY

- Computer aided design and experimental characterization of a resonant slotted waveguide array working in the X band.
- A MATLAB toolbox for testing antennas from plane rectangular near field measurements.
- A MATLAB tool for the experimental characterization of antennas via the cylindrical NF– FF transformation technique.

MAIN PROJECTS COMPLETED DURING THE MSc. DEGREE COURSE

Power electronics: Design of the power stage and control network of a buck-boost converter for TLC applications (Simulation environments: MATLAB, PSIM).

Automatic measurement systems: Design and practical implementation of an FFT analyzer using a microcontroller. (Simulation environments: MPLAB, MATLAB).

Power electronics: Design and practical implementation of a driving circuit for the full bridge DC/DC and DC/AC converter. (Simulation environment: PSIM).

Control system engineering: Modelling and analysing a manufactory flexible cell via Petri nets. (Simulation environment: PNETLAB).

Remote sensing: Detection of a DC component in AWGN by a wireless sensor network. (Simulation environment: MATLAB).

TECHNICAL AND SOCIAL SKILLS

Languages	Italian (mother tongue), English (Fluent)
Computer Skills	Simulation tools: Matlab, Simulink, Mathematica Finite Element softwares: Ansoft HFSS, Comsol Multiphysics Instrumentation: Vectorial Network Analyzer, Oscilloscope Circuit simulators: Pspice, Psim Programming languages: FORTRAN, C.
Other Skills	Good ability to work in team. Good personal organization

Autorizzo il trattamento dei dati ai sensi del D.Lgs. n. 196/2003.

Avellino, April 2012

Dr. Gianluca Gennarelli