



# UNIVERSITÀ DEGLI STUDI DELL'AQUILA

**Prof. Daniele Romano**

## **Curriculum scientifico**

(Aggiornato il 2023/09/25)

Postdoctoral researcher with a higher knowledge and experience both in the field of electromagnetic compatibility and computer science engineering. Italian scientific habilitation as associate professor in electrical engineering. Author of more than 70 papers in international journals and in conference proceedings, also in collaboration with international universities. Participation at 3 research European projects in collaboration with international companies and international research institutes. Current research interests include electromagnetic modeling in the framework of large problems. Co-founder of the Academic spin-off TE EMA (Tools for Efficient ElectroMagnetic Analysis).

### Journal papers

1. G. Antonini, D. Romano, Efficient Frequency-Domain Analysis of PEEC Circuits Through Multiscale Compressed Decomposition, IEEE Transactions on Electromagnetic Compatibility, Vol. 56, n. 2, pp. 454-465, 2014.
2. G. Antonini, D. Romano, An Accurate Interpolation Strategy for Fast Frequency Sweep of Partial Element Equivalent Circuit Models, IEEE Transactions on Electromagnetic Compatibility, Vol. 56, n. 3, pp. 653 - 658, 2014.
3. G. Antonini, D. Romano, Acceleration of Nodal-Time-Domain Analysis of PEEC Circuits Through Multiscale Compressed Decomposition, IEEE Transactions on Electromagnetic Compatibility, Vol. 56, n. 4, pp. 970 - 979, 2014.
4. G. Antonini, D. Romano, Partitioned Model Order Reduction of Partial Element Equivalent Circuit Models, IEEE Transactions on Components, Packaging and Manufacturing, Vol. 4, n. 9, pp.1503 - 1514, 2014.
5. D. Romano, G. Antonini, D. Daroui, J. Ekman, A Fast Sparse Reluctance and Capacitance-Based Solver for the Partial Element Equivalent Circuit Method, IEEE Transactions on Electromagnetic Compatibility, Vol. 56, n. 5, pp. 1077-1086, 2014.
6. G. Antonini, D. Romano, Quasi-Static Partial Element Equivalent Circuit Models of Linear Magnetic Materials, IEEE Transactions on Magnetics, vol. 51, no. 7, 2015.

7. G. D'Angelo, M. D'Emidio, D. Frigioni, D. Romano. Enhancing the Computation of Distributed Shortest Paths on Power-law Networks in Dynamic Scenarios, *Theory of Computing Systems*, 57(2):444-477, Springer, 2015.
8. G. Antonini, D. Romano, Adaptive-Cross-Approximation Based Acceleration of Transient Analysis of Partial Element Equivalent Circuits, *IET Antennas, Microwaves and Devices*, vol. 9, no. 7, pages 700-709, 2015.
9. G. Antonini, D. Romano, A Vectorized Multiscale Compressed Decomposition based Solver for PEEC Method, *Wiley International Journal of Numerical Modelling: Electronic Networks, Devices and Fields*, vol. 28, n.4, July/August, pp 419-432, 2015.
10. G. Antonini, D. Romano, M. Bandinelli, A. Mori, A. Dieudonne Goleanu, M. Dunand, A Surface PEEC Formulation for High-Fidelity Analysis of the Current Return Networks in Composite Aircrafts, *IEEE Transactions on Electromagnetic Compatibility*, vol. 57, no. 5, pages 1027-1036, 2015.
11. D. Romano, G. Antonini, Partial Element Equivalent Circuit-Based Transient Analysis of Graphene-Based Interconnects, *IEEE Transactions on Electromagnetic Compatibility*, vol. 58, no. 1, pages 801-810, 2016.
12. D. Romano, G. Antonini, Augmented Time Domain PEEC Solver for Dispersive Magnetic Materials Modeling, *IEEE Transactions on Magnetics*, Vol. 52, no. 5, 2016.
13. D. Romano, G. Antonini, A. E. Ruehli, Time Domain PEEC Solver Including Non-Linear Magnetic Materials, *IEEE Transaction on Magnetics*, Vol. 52, no. 9, 2016.
14. D. Romano, G. Antonini, M. D'Emidio, D. Frigioni, A. Mori, M. Bandinelli, Rigorous DC Solution of Partial Element Equivalent Circuit Models, *IEEE Transactions on Circuits and Systems-I*, Vol. 63, no. 9, pp. 1499-1510, 2016.
15. D. Romano, G. Antonini, Quasi-static Partial Element Equivalent Circuit Model of Magneto-Dielectric Materials, *IET-MAP*, Vol. 11, no. 6, pages 915-922, 2017.
16. L. Lombardi, D. Romano, G. Antonini, Accurate and Efficient Low-Frequency Solution of Partial Element Equivalent Circuit Models, *IEEE Transactions on Electromagnetic Compatibility*, Vol. 59, no. 5, pages 1514-1522, 2017.
17. A. Hartman, D. Romano, G. Antonini, J. Ekman, Partial Element Equivalent Circuit Models of Three-dimensional Geometries

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18. L. Lombardi, D. Romano, G. Antonini, Partial Element Equivalent Circuit Modeling of Silicon Interconnects, IEEE Transactions on Microwave Theory and Techniques, Vol. 65, no. 12, pages 4794 ? 4801, December 2017.

19. D. Romano, L. Lombardi, G. Antonini, Acceleration of the Partial Element Equivalent Circuit Method with Uniform Tessellation?Part I: Identification of Geometrical Signatures, Wiley International Journal of Numerical Modelling: Electronic Networks, Devices and Fields, Vol. 31, no. 6, pp. e2307, 2018.

20. D. Romano, L. Lombardi, G. Antonini, Acceleration of the Partial Element Equivalent Circuit Method with Uniform Tessellation?Part II: Efficient Frequency Domain Solver with Interpolation and Reuse of Partial Elements, Wiley International Journal of Numerical Modelling: Electronic Networks, Devices and Fields, Vol. 31, no. 6, pp. e2306, 2018.

21. A. Astorino, D. Romano, G. Antonini, Fast and Versatile Inverse Hysteresis Model in Quasi-Static Regime: Derivation and Implementation in Simulink and PEEC Frameworks, in IEEE Transactions on Magnetics, Vol. 54, no. 7, pp. 1?10, 2018.

22. L. Lombardi, D. Romano, G. Antonini, Analytical Formula for the Magnetic-to-Electric Field Coupling of Magnetization in the Partial Element Equivalent Circuit Method, in IEEE Transactions on Magnetics, Vol. 54, no. 10, pp. 1?12, 2018.

23. D. Romano, G. Antonini, Partial Element Equivalent Circuit Formulation for Moving Objects, IEEE Transactions on Electromagnetic Compatibility, Vol. 61, no. 5, pp. 1586?1592, 2018.

24. F. Ferranti, D. Romano, G. Antonini, On the passivity of the quasi-static partial element equivalent circuit method, in International Journal of Circuit Theory and Applications, Vol. 47, no. 2, pp. 304?319, 2019.

25. D. Romano, T. Scozzafava, G. Antonini, Non Destructive Testing of Cylindrical Ropes through the Parametric Transformer, in ACES Journal, Vol. 38, no. 9, pp. 1411?1417, 2019.

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27. D. Romano, I. Kovacevic, M. Parise, U. Grossner, J. Ekman, G. Antonini, Rigorous dc Solution of Partial Element Equivalent

Circuit Models Including Conductive, Dielectric, and Magnetic Materials, IEEE Transactions on Electromagnetic Compatibility, Vol. 62, no. 3, pp. 870-879, 2019.

28. D. Romano, G. Antonini, U. Grossner, I. Kovacevic, Circuit synthesis techniques of rational models of electromagnetic systems:

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30. M. Parise, D. Romano, G. Antonini, On the Flux Linkage between Pancake Coils in Resonance-Type Wireless Power Transfer Systems, in International Journal of Antennas and Propagation, vol. 2020, Article ID 8630978, 6 pages, 2020.

31. L. Lombardi, D. Romano, G. Antonini, Efficient Numerical Computation of Full-Wave Partial Elements Modeling Magnetic Materials in the PEEC Method, in IEEE Transactions on Microwave Theory and Techniques, Vol. 68, no. 3, pp. 915-925, 2020.

32. I. Kovacevic, D. Romano, G. Antonini, L. Lombardi, U. Grossner, Full-Wave Computation of the Electric Field in the Partial Element Equivalent Circuit Method Using Taylor Series Expansion of the Retarded Green's Function, in IEEE Transactions on Microwave Theory and Techniques, Vol. 68, no. 8, pp. 3242-3254, Aug. 2020.

33. I. Kovacevic, D. Romano, L. Lombardi, U. Grossner, J. Ekman, G. Antonini, Accurate Calculation of Partial Inductances for the Orthogonal PEEC Formulation, IEEE Transactions on Electromagnetic Compatibility, Vol. 63, no. 1, pp. 82-92, Feb. 2021.

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38. M. De Lauretis, E. Haller, F. Di Murro, D. Romano, G. Antonini, J. Ekman, I. Kovacevic?Badstubner, U. Grossner, On the rectangular mesh and the decomposition of a Green?s?function?based quadruple integral into elementary integrals, Engineering Analysis with Boundary Elements, vol. 134, no. 4, pp. 419?434, Jan. 2022.

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