

## UNIVERSITÀ DEGLI STUDI DELL'AQUILA

## Prof. Valerio De Santis Curriculum scientifico

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Valerio De Santis received the Laurea degree (with honours

) in telecommunication engineering and the Ph.D. degree in electrical and computer engineering, both from the University of L?Aquila, L?Aquila, Italy, in 2006 and 2010.

He joined the Foundation for Research on Information Technologies in Society, IT?IS Foundation, Switzerland, from 2011 to 2013, ho lding the position of Project Leader and he was an Assistant Professor at the Nagoya Institute of Technology, Nagoya, Japan, from January to March 2015. He is currently an Associate Professor at the University of L?Aquila, L?Aquila, Italy. His research interests include biological effects of electromagnetic fields, electromagnetic compatibility, and numerical methods and techniques. He is a senior member of the Institute of Electrical and Electronics Engineers (IEEE) and Secretary of the IEEE-International Commission on Electromagnetic Safety (ICES)-Technical Committee (TC) 95-SubCommittee (SC) 6: IEEE-ICES-TC95-SC6. He is also a member of the International Electrotechnical Committee (IEC) TC-106: Methods for the assessment of electric, magnetic and electromagnetic fields associated with human exposure.

Prof. De Santis received the Second Best Student Paper Award at the Bioelectromagnetics Society (BEMS) Annual Meeting, Cancun, Mexico, 2006, the Best Student Paper Award at the IEEE International Symposium on EMC, Honolulu, HI, USA, in 2007, the Leo L. Beranek Travel Grant at the IEEE International Symposium on EMC, Detroit, MI, USA, in 2008, and the Best Poster Award at the IEEE 18th Biennial Conference on Electromagnetic Field Computation (CEFC), Hangzhou, China, 2018.

## **Recent Publications**

- V. De Santis, A. Di Francesco, K. R. Foster, G. Bit-Babik, and A. Faraone, ?Monte-Carlo based numerical dosimetry in reverberation chamber exposure systems employed for In-Vivo rodent bioassays,? IEEE Ac cess, vol. 11, pp. 22018-22033, 2023.
- V. De Santis, A. Di Francesco, and A. G. D?Aloia, ?A numerical comparison between Preisach, J-A and D-D-D hysteresis models in computational electromagnetics,? Applied Sciences, vol. 13, no. 8, p. 5181, 2023.
- V. De Santis, A. Di Francesco, G. Bit-Babik, J. Roman, and W. El Haj, ?On the correlation between incident power de nsity and temperature increase for exposures at frequencies above 6 GHz,? IEEE Access, vol. 10, pp. 82236-82245, 2022
- V. De Santis, L. Giaccone, and F. Freschi, ?Influence of posture and coil position on the safety of a WPT system while recharging a compact EV,? Energies, vol. 14, no. 21, p. 7248, Nov. 2021.
- A. G. D?Aloia, A. Di Francesco, and V. De Santis, ?A novel computational method to identify/analyze hysteresis loops of hard magnetic materials,?

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- T. Campi, S. Cruciani, I. Laakso, and M. Feliziani, ?Assessment of the induced electric fields in a Carbon-Fi ber ,? Energies, vol. 11, no. 3, pp. 684-692, Mar. 2018.
- T. Campi, S. Cruciani, V. De Santis, F. Maradei, and M. Feliziani, ?Numerical characterization of the magnetic field in electrical ve hicles equipped with a WPT system,? Wireless Power Transfer, vol. 50, no. 2, pp. 124-132, Sept. 2017.
- I. Laakso, V. De Santis, S. Cruciani, T. Campi, and M. Feliziani, ?Modelling of induced electric fields based on incompletely known ma gnetic fields,? Physics in Medicine and Biology, Online access, June 2017.
- V. De Santis, M. Valeriy, D. A. Lampasi, F. Mykola, and M. D. Ortiguera, ?Fractional-order circuit models of the human body im pedance for compliance tests against contact currents,? International Journal of Electronics and Communications, vol. 78, pp. 238-24 4, June 2017. *Special Issue*.
- K. Wake, I. Laakso, A. Hirata, J. Chakarothai, T. Onishi, S. Watanabe, V. De Santis, M. Feliziani, and M. Taki, ?Derivation of co upling factors for different Wireless Power Transfer systems: inter- and intra-laboratory comparison,? IEEE Transactions on Electromagnetic Compatibility,vol. 59, pp. 1-9, Dec. 2016. *Special Issue*.
- V. De Santis, X. L. Chen, S. Cruciani, T. Campi, and M. Feliziani, ?A novel homogenization procedure to model the skin layers in LF numerical dosimetry,? Physics in Medicine and Biology, vol. 61, pp. 4402-4411, May 2016. *Special Section*.
- T. Campi, S. Cruciani, F. Palandrani, V. De Santis, A. Hirata, and M. Feliziani, ?Wireless Power Transfer charging system for AI MDs and pacemakers,? IEEE Transactions on Microwave Theory and Techniques, vol. 64, no. 2, pp. 633-642, Feb. 2016.
- I. Laakso, S. Tanaka, S. Koyama, V. De Santis, and A. Hirata, ?Inter-subject variability in tDCS electric fields,? Brain Stimulation, vol. 8, no. 5, pp. 906-913, Sept. 2015.
- V. De Santis, X. L. Chen, I. Laakso, and A. Hirata, ?An equivalent skin conductivity for LF magnetic field dosimetry,? Biomedical Physics & Engineering Express, vol. 1, pp. 1-10, June 2015.
- V. De Santis, M. Douglas, J. Nadakuduti, S. Benkler, X. L. Chen, and N. Kuster, ?Human exposure from pulsed magnetic field th erapy mats: a case study with 3 commercial products,? Bioelectromagnetics, vol. 36, no. 2, pp. 149-161, Feb. 2015.

- X. L. Chen, A. E. Umenei, D. W. Baarman, N. Chavannes, V. De Santis, J. R. Mosig, and N. Kuster, ?Human exposure to close-ra nge Wireless Power Transfer systems as a function of design parameters,? IEEE Transactions on Electromagnetic Compatibility, vol. 56, no. 5, pp. 1027-1034, Oct. 2014.
- V. De Santis, and X. L. Chen ?On the issues related to compliance assessment of ICNIRP 2010 basic restrictions,? Journal of Radi ological Protection,vol. 34, pp. N31-N39, April 2014.
- S. Cruciani, V. De Santis, M. Feliziani, and F. Maradei, ?Circuit-oriented solution of Drude dispersion relations by the FD2 TD,? IEEE Transactions on Magnetics, vol. 50, no. 2, pp. 425-428, Feb. 2014.
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