

Andrea De Marcellis received the degree in Electronic Engineering and the PhD in Microelectronics from University of L'Aquila (Italy) in 2005 and 2009, respectively. Currently, he is Associate Professor of Electronics at the Department of Information Engineering, Computer Science and Mathematics, University of L'Aquila (Italy). He is co-inventor of a patent (N°. RM2008-A000194, Italy, 2008) on an automatic lock-in amplifier and co-author of a book, two book-chapters and more than 170 publications in international journals (more than 60 papers) and as conference proceedings with 1507 citations and H-Index equal to 23.

His main research activities, fields of interest and expertise can be summarised as follows:

- 1) design, development, and characterisation of CMOS integrated analog/digital electronic and optoelectronic circuits and systems for specific applications (ASIC) in signal and data conditioning/processing and interfacing of sensors (e.g., resistive, capacitive, photodetectors, etc.);
- 2) design, development, and characterisation of measurement systems for signal from noise recovery (lock-in amplifiers and phase detectors) based on innovative automatic synchronous techniques for sensitivity and resolution optimizations (SNR enhancement) in the detection of electrical and optical signals;
- 3) design, development, modelling and characterization through spectroscopic analysis of optical sensors and detectors, nanostructured photonic devices and metamaterials/metasurfaces for optical sensing applications and surface plasmon spectroscopy with high-sensitivity high-resolutions detection;
- 4) design, development, and characterisation of high-efficiency optoelectronic communication systems for transcutaneous optical biotelemetry based on pulsed modulation techniques for biomedical applications as well as for civil, industrial, and environmental scenarios.

Main references:

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