



Andrea Massa (IEEE Fellow, IET Fellow, Electromagnetic Academy Fellow) he has been a Full Professor of Electromagnetic Fields @ University of Trento since 2005. At present, Prof. Massa is the director of the network of federated laboratories "ELEDIA Research Center" located in Brunei, China, Czech, France, Greece, Italy, Japan, Peru, and Tunisia with more than 150 researchers. Moreover, he is holder of a Chang-Jiang Chair Professorship @ UESTC (Chengdu - China), Professor @ CentraleSupélec (Paris - France), and Visiting Professor @ Tsinghua (Beijing - China). He has been holder of a Senior DIGITEO Chair at L2S-CentraleSupélec and CEA LIST in Saclay (France), UC3M-Santander Chair of Excellence @ Universidad Carlos III de Madrid (Spain), Adjunct Professor at Penn State University (USA), Guest Professor @ UESTC (China), and Visiting Professor at the Missouri University of Science and Technology (USA), the Nagasaki University (Japan), the University of Paris Sud (France), the Kumamoto University (Japan), and the National University of Singapore (Singapore). He has been appointed IEEE AP-S Distinguished Lecturer (2016-2018) and served as Associate Editor of the "IEEE Transaction on Antennas and Propagation" (2011-2014). His research activities are mainly concerned with inverse problems, antenna analysis/synthesis, radar systems and signal processing, cross-layer optimization and planning of wireless/RF systems, system-by-design

Keynote Speech III

"Optimal Trade-Off Phased-Arrays for Future Generation Radars and Communication Systems"

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Phased array antennas represent a key component in the development of communication and radar technologies. Thanks to their high flexibility and reconfiguration capabilities, such antennas are suitable devices to be used in 5G or others next generation systems. However, the cost of these systems represents a heavy obstacle to a wide diffusion in the commercial wireless industry, especially when dealing with large fully-populated arrays where each element is equipped with an expensive transmitting/receiving module (TRM). Since several years the scientific community have been making great efforts to find alternative solutions to overcome this issue, among which thinned, sparse or sub-arrayed/clustered arrays, enabling the achievement of good trade-offs between architecture/feed network complexity and radiation performance. More specifically, recent advances on array design are concerned with the simplification of the beam forming network (BFN) by means of innovative strategies devoted to jointly minimize the unavoidable reduction of the array performance in terms of radiation features and link Quality-of-Service (QoS). The talk with review leading edge solutions in unconventional array design also envisaging future trends and potentialities.

and material-by-design (metamaterials and reconfigurable-materials), and theory/applications of optimization techniques to engineering problems (coms, medicine, and biology).

Prof. Massa published more than 700 scientific publications among which more than 350 on international journals (> 12.000 citations - h-index = 55 [Scopus]; > 9.500 citations - h-index = 48 [ISI-WoS]; > 20.000 citations - h-index = 80 [Google Scholar]) and more than 500 in international conferences where he presented more than 200 invited contributions (> 35 invited keynote speaker) (www.eledia.org/publications). He has organized more than 100 scientific sessions in international conferences and has participated to several technological projects in the European framework (>20 EU Projects) as well as at the national and local level with national agencies (>300 Projects/Grants).