
SEMINAR

**Exploiting the Complexity of the
Electromagnetic Field:
from Theory to Applications**

Speaker: Prof. Marco Donald Migliore

(Università di Cassino e del Lazio Meridionale, Cassino, Italy)

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Location: Room Garda – Polo Scientifico F. Ferrari – Povo

Note: The seminar will be held in English

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Loosely speaking, given a system with many parts interacting with each other in multiple ways, the degree of complexity of a system is a measure related to the most compact way to describe all the possible states of the system.

In this talk the concept of complexity of the electromagnetic field is discussed using as measure of complexity the rank of the radiation operator or the Kolmogorov epsilon-entropy when non-linear spaces are involved. Applications of the theory to MIMO systems, antenna diagnosis, antenna measurements and inverse problems are presented showing how it is possible to effectively exploit the complexity of the electromagnetic field in practical problems.

• **About the Speaker**

Prof. Marco Donald Migliore received the Laurea (Hons.) and Ph.D. degrees in electronic engineering from the University of Napoli, Italy. He is an Associate Professor with the University of Cassino and Southern Lazio, Cassino, Italy. He was a Visiting Professor with the University of San Diego in California, San Diego, CA, USA, and with the University of Rennes 1, Rennes, France, and a Speaker with the Summer Research Lecture Series of the UCSD CALIT2 Advanced Network Science (ANS) in 2008. His research interests include the connections between electromagnetism and information theory, the analysis, synthesis, and characterization of antennas in complex environments, MIMO antennas and propagation, ad hoc wireless networks, antenna measurements, and energetic applications of microwaves. He is the Director of the Microwave Laboratory and Coordinator of the Computer Science and Telecommunications Engineering courses at the University of Cassino and Southern Lazio.

Prof. Migliore is IEEE Senior Member, member of the Italian Electromagnetic Society (SIEM), member of the scientific committee of of the National Inter-University Consortium for Telecommunication (CNIT) and founder member of the Italy section of the Antenna Measurement Techniques Association. He is past Associate Editor of IEEE Transactions on Antenna and Propagation.