

IEEE OES Distinguished Lecturer Talk

TITLE: Spatial resolution enhancement of microwave radiometer measurements



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Organized by: Prof. Weimin Huang, Memorial University

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ABSTRACT: Microwave radiometer products call for a spatial resolution that, although adequate for meso-scale applications, is too coarse for regional-scale studies. Hence, spatial resolution enhancement techniques are needed to generate added-value products suitable for regional-scale studies. Methods have been proposed to enhance the spatial resolution of single-pass radiometer measurements by solving the related ill-posed inverse problem in both Hilbert and Banach spaces. Spatial resolution enhancement leads to an underdetermined problem that, from a mathematical viewpoint, implies that no unique inverse operator exists; therefore, additional constraints must be imposed on the sought solution.

In this talk, after a brief overview of the challenges associated to the spatial resolution enhancement problem, an overview of recent developments in the Hilbert and the Banach spaces are provided and showcased on actual microwave radiometer measurements.

About the Speaker: Dr. Ferdinando Nunziata has been Associate professor of applied electromagnetics at University di Napoli Parthenope since 2019 and he has been working on applied electromagnetics and microwave (active and passive) remote sensing since 2005. He co-authored more than 100 scientific articles on these topics. He is IEEE Senior Member, Associate Editor of IEEE JSTARS and MDPI Remote Sensing journals, member of the Cosmo-SkyMed Mission Advisory Group, and he has been involved in the organization of thematic sessions and conferences related to microwave remote sensing.