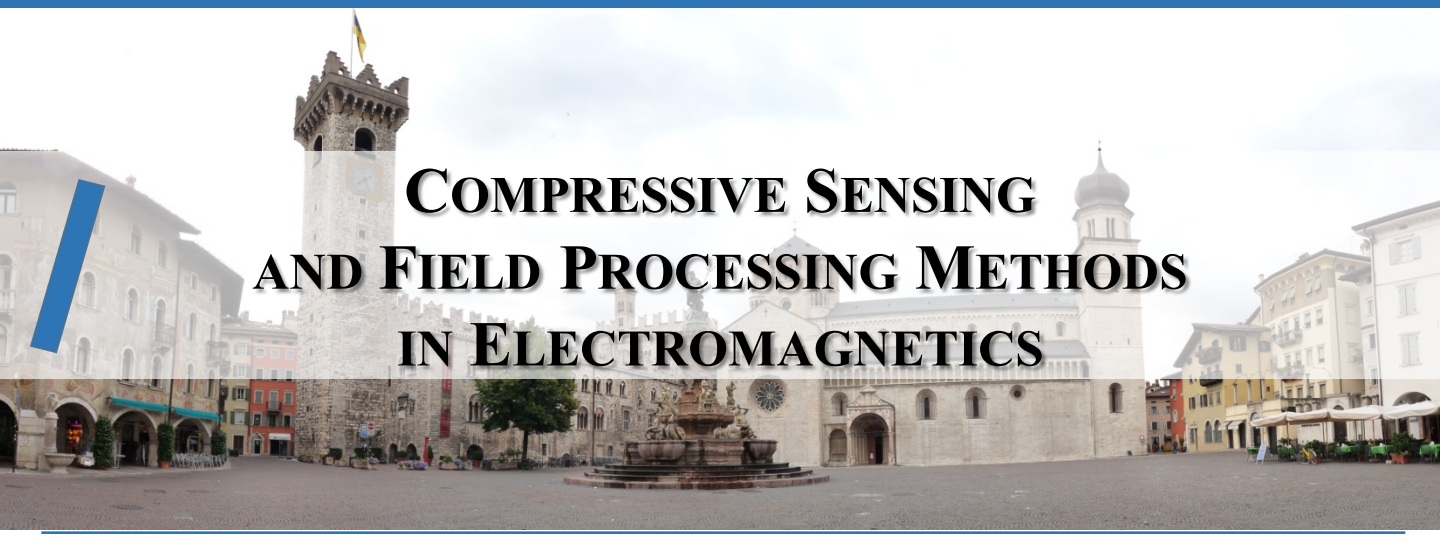
ESoA 2025 Course @ Trento



Compressive Sensing and Field Processing Methods in Electromagnetics

The course explores the transformative potential of Compressive Sensing (CS) and advanced Electromagnetic Fields Signal Processing (SP) techniques in solving challenging problems in Electromagnetics (EM). These methods, rooted in applied mathematics and data science, provide powerful tools for addressing scenarios where acquiring or processing data is expensive, constrained, or underdetermined-conditions frequently encountered in modern EM applications.
Theoretical concepts will be complemented with hands-on examples and exercises, emphasizing practical problem-solving in Electromagnetics and showcasing the interplay between mathematical models and physical systems.

Day 1: Introduction and Basic Theory of CP and SP in EM
Day 2: Customization and Applications in Antenna Engineering
Day 3: Imaging and Remote Sensing Methods
Day 4: Antenna Diagnostics and Processing Methods
Day 5: Further Applications & Future Trends

Who Should Attend?

Targeted at PhD students, researchers, scientists, and engineers, this interdisciplinary course is aimed at equipping participants with: (i) an introduction to the principles of compressive sensing and modern signal processing concepts of interest for EM applications; (ii) insight into state-of-the-art algorithmic strategies for sparse reconstruction, low-rank modeling, and information extraction; (iii) a broad overview of key applications in electromagnetic theory and engineering, where such techniques have enabled significant performance improvements and new design paradigms.

Lecturers

- **Dr. ANSELMI Nicola,** ELEDIA@UniTN - DICAM, Italy
- **Prof. GUSTAFSSON Mats,** Lund University, Sweden
- **Prof. ISERNIA Tommaso**, University Mediterranea of Reggio Calabria, Italy
- **Dr. LAHAIE Ivan**, KBR, Inc., USA
- **Prof. OLIVERI Giacomo,** ELEDIA@UniTN - DICAM, Italy
- **Dr. PALMERI Roberta,** University Mediterranea of Reggio Calabria, Italy
- **Prof. SHA Wei,** Zhejiang University, China

Date and Location

October 13-17, 2025 – Trento, Italy

The course is offered on-site and on-line (synchronous and asynchronous) with video recordings, hand-outs, etc. of the lectures available off-line

Course Coordinators

- Prof. OLIVERI Giacomo
- Prof. ISERNIA Tommaso

Registration Types and Fees

- Academic: 550 €
- Industrial & Profit institutions: 1100 €

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