University of Pavia

Ph.D. School of Electrical and Electronics Engineering and Computer Science

Seminar series

Global Navigation Satellite Systems

Dr. Cinzia Zuffada

California Institute of Technology

Italian Scientists and Scholars in North America Foundation

11:00-13:00 Nov. 16th, 2026 (Room C6): Basics of GNSS systems for Earth observation.

16:00-18:00 Nov. 16th, 2025 (Room E2): GNSS Reflectivity and its applications.

Abstract

The Global Navigation Satellite System (GNSS) reflectometry, i.e., GNSS-R, is a novel remote-sensing technique that uses GNSS signals reflected from the Earth's surface to inferits surface properties such as sea surface height, oceanwinds, sea-ice coverage, vegetation, wetlands and soil moisture, toname a few. This communication discusses the scientific value of GNSS-R to (a) furthering our understanding of ocean mesoscalecirculation toward scales finer than those that existing nadiraltimeters can resolve, and (b) mapping vegetated wetlands, anemerging application that might open up new avenues to map andmonitor the planet's wetlands for methane emission assessments.

Biography

Cinzia Zuffada joined NASA's Jet Propulsion Laboratory (JPL), Pasadena, CA, USA, in 1992, where she has been Deputy Chief Scientist. She has been a key contributor to the strategic planning of science and technology research and development directions for JPL and to managing institutional internal research and development investments. Since the late-1990s, she has led some pioneering global navigation satellite system (GNSS) reflectometry technology development awarded through NASA programs and has played a pivotal role in demonstrating the feasibility of global positioning system (GPS) altimetry measurement from fixed sites and airplanes. More recently, she has been focusing on the application of GNSS reflectometry to detect surface water, as a member of the Science Team of NASA CYGNSS.

She was a tenured Researcher in electromagnetic (EM) field theory with the University of Pavia before moving to USA, where she worked on electromagnetic (EM) scattering and radiation problems. She was a recipient of the Teresian Medal from the University of Pavia in 2002, the Magellan Award from JPL in 2014, the Outstanding Leadership Award from NASA in 2015, and the Knighthood of Order of Merit of the Italian Republic in 2015.

Organizer
Prof. Paolo Gamba

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Seminar in English

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