



WEBINAR ON

SOIL-GEOSYNTHETIC INTERACTION UNDER MONOTONIC AND CYCLIC LOADING: INSIGHTS FROM LARGE- SCALE LABORATORY TESTS AND THEIR APPLICATION IN REINFORCED SOIL STRUCTURES

Dr. FERNANDA FERREIRA



**4 SEPTEMBER 2025
(THURSDAY)**



4.00PM - 6.00PM

(GMT+8, Kuala Lumpur Time)

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Registration Fees

Student Members : Free
IEM Members RM 15
IEM Non Members RM 70

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SYNOPSIS

Geosynthetics, polymeric materials widely used in civil and environmental engineering, have revolutionised the design of infrastructure systems by offering economic and technical advantages over traditional solutions. Their use in applications such as soil reinforcement, erosion control, and landfill lining has grown significantly over recent decades, driven by increasing interest from the international scientific community.

A critical factor in the performance of geosynthetics is their interaction with soils, particularly when these materials are used as reinforcements or placed on slopes. This webinar explores the behaviour of soil-geosynthetic interfaces, with a special focus on granite residual soils, under both monotonic and cyclic loading conditions.

Through an extensive laboratory testing programme—including direct shear, inclined plane, and pullout tests—this session will provide an in-depth overview of the factors influencing interface performance. Key parameters such as soil moisture, density, confining pressure, soil and geosynthetic type, loading frequency and amplitude, and number of load cycles will be examined.

Highlights of the session include:

- Description of the experimental programme, test setups, and materials used.
- Analysis of monotonic and cyclic interface behaviour in direct shear and pullout tests.
- Comparative analysis of results from direct shear and inclined plane tests.
- Evaluation of shear strength parameters and interaction coefficients.
- Key findings and recommendations.

This webinar will offer valuable insights into the mechanisms that govern soil-geosynthetic interaction, thereby contributing to a more informed and effective use of these materials in reinforced soil structures.

SPEAKER'S PROFILE

Fernanda Ferreira is an Assistant Professor in the Department of Geosciences at the University of Aveiro, Portugal. She holds an MSc (2010) and PhD (2016) in Civil Engineering from the University of Porto and previously served as a Research Associate at the University of Wollongong, Australia.

Her research specializes in geosynthetics for reinforcing and stabilizing earthen structures, applications in transport infrastructure, and sustainable use of recycled construction materials. Dr. Ferreira has authored over 60 scientific publications and contributes as an Editorial Board member for Geotextiles and Geomembranes, Geosynthetics International, Sustainability and Frontiers in Built Environment.

She has received numerous international recognitions, including selection for the inaugural IGS Young Members Session (2014), Honourable Mention from the Portuguese Geotechnical Society (2016), the IGS Students Award (2016), the ISSMGE Bright Spark Lecture Award (2021), and the prestigious Young IGS Award (2023).

Dr. Ferreira currently serves as Secretary of the Portuguese IGS Chapter, leads the IGS Young Members Plus(+) Subcommittee, and is Vice-Chair of the IGS Technical Committee on Soil Reinforcement.