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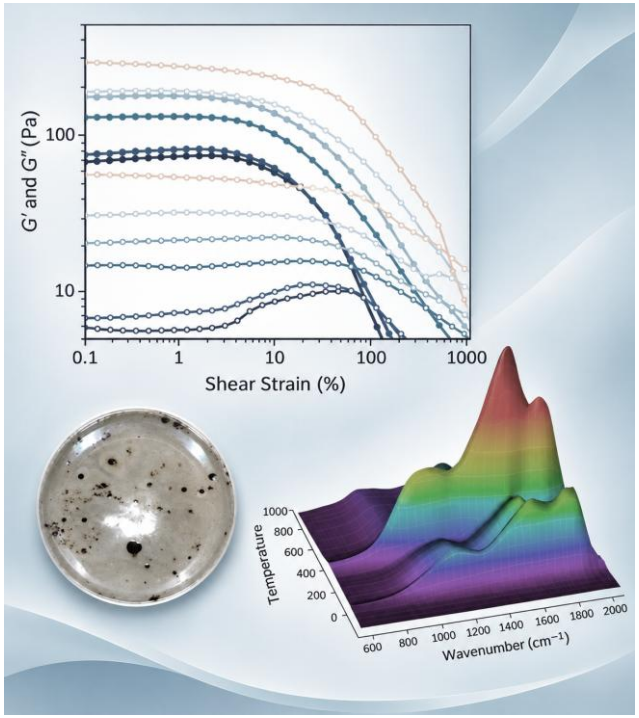
Understanding the behavior of oil sands fluid fine tailings: composition, rheology, and polymer interactions

Prof. Marika Santagata

Full Professor of Geotechnical Engineering | Purdue University, Indiana, USA

Visiting Researcher, Department of Engineering, 2–14 November 2026

Friday, **13 November 2026**
Starting at **10:00 a.m.**
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ABSTRACT

Fluid fine tailings (FFTs) generated from oil sands mining are clay-rich materials characterized by high water content, low hydraulic conductivity and shear strength, and exceptionally slow consolidation rates, which pose significant challenges to their reclamation. The ultrafine fraction, pore fluid chemistry and the presence of organics govern their colloidal behavior and control the effectiveness of flocculants used for dewatering. The presentation will discuss findings from a multi-disciplinary investigation of two FFT materials and their treatment using a commercial flocculant. Thermal and spectroscopic analyses are used to characterize the FFTs. Advanced rheological techniques allow probing, in near-real time, the formation and development of the polymer–clay structure, tracking its evolution with dewatering and quantifying it sensitivity to mechanical disturbance.

SHORT BIO

Marika Santagata is a Full Professor in the School of Civil and Construction Engineering at Purdue University.
She is a graduate of the University of Ancona, and holds MS and PhD degrees from MIT.
She currently serves as co-Editor of Géotechnique and is board-member of the United States Universities Council for Geotechnical Engineering Education and Research (USUCGER) .

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