



## CONFÉRENCE TECHNIQUE

### An overview of Brazil and the research activities in applied mathematics and numerical methods developed at Federal University of Pernambuco – UFPE

Universidade Federal de Pernambuco

#### Professor Paulo Ribeiro, UFPE, Brazil, and Visiting Professor Polytechnique Montréal



- Date : Jeudi le 27 octobre
- Heure : 12 :45 – 13 :45 (période 45)
- Local : L-3816 (en présentiel) simultanément en ligne

<https://polymtl-ca.zoom.us/j/82319626222?pwd=R1FpN1lySWZpZUUweE1ZQ0w2Qk1MUT09>

Meeting ID: 823 1962 6222

Passcode: 002503

**BIENVENUE À TOUS**

**Abstract** : Brazil is a huge and diverse country, with a population of over 200 M habitants distributed in the world's 5th largest nation. Among the 26 provinces, there is one located in the warm and sunny region of the northeastern part of the country. This province is Pernambuco and hosts the Federal University of Pernambuco (UFPE), which is a public institution that provides free education to 40,000 students in 100 undergraduate courses, and 189 graduate programs.

This presentation will provide an overview of Brazil and will continue with an in-depth discussion about the origins of UFPE and the current status of this educational institution. Additional information will be provided concerning the experience of the presenter in developing undergraduate and graduate research at the Applied Mathematics and Numerical Methods in Engineering research group (MAMNE). Past and active research will cover a wide range of topics, such as mathematical modeling; finite element method; generalized finite difference method; fluid-structure interaction; computational codes for numerical methods in Julia, Python, Matlab, and their integration with GiD and SALOME; automatic mesh generation; adaptive refinement.

A second part of the research discussion will be focused on real-world problems in wind turbines and concrete dam engineering. These include static and dynamic structural analyses of these structures, as well as the perspectives for research development in these topics.

The presentation is suited for all the academic community interested in Brazil, its research, and the activities of a group dedicated to the computational solution of structural engineering problems.