

Speaker: Moisés Rutkoski

Title: Two Fractional Models for the Euler-Bernoulli beam

Abstract: In this presentation, we analyse fractional models applied to the classical Euler–Bernoulli beam equation subject to point loading. Our aim is to incorporate memory and non-locality effects through fractional calculus. We analyse formulations based on Caputo and Caputo-Fabrizio derivatives, for which we develop analytical solutions under a fixed-supported beam boundary condition. Numerical simulations performed (using Maple software) demonstrate how fractional parameters influence the structure's dynamic behaviour, offering greater flexibility in modelling with fewer material parameters. The results demonstrate the ability of fractional models to accurately represent complex phenomena in structural engineering.