



**POLITECNICO
DI TORINO**



Dipartimento di
Scienze Matematiche
G. L. Lagrange

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Tuesday **January 28** at 14:30

Politecnico di Torino, DISMA, Aula Buzano (third floor)

Dušan ZORICA

Professor at the Serbian Academy of Arts and Sciences and the University of Novi Sad

Memory and non-locality effects in wave propagation modelling

Prof. Alfio Grillo introduces the seminar.

Abstract

Classical wave equation is generalized within the framework of fractional calculus in order to account for the memory and non-local effects that might be material features. Both effects are included in the constitutive equation, while the equation of motion of the deformable body and strain are left unchanged. Memory effects in viscoelastic materials are modeled through distributed-order fractional constitutive equation that generalizes all linear models having differentiation orders up to order one. Microlocal approach in analyzing the singularity propagation is utilized in the case of viscoelastic material described by the fractional Zener model, as well as in the case of two non-local models: non-local Hookean and fractional Eringen.

Biography

Dušan Zorica received his PhD from the University of Novi Sad in 2009. He is currently associate professor at the University of Novi Sad and associate research professor at the Mathematical Institute of the Serbian Academy of Arts and Sciences. His research interests include Fractional Calculus with Applications in Mechanics, such as Vibrations, Diffusion Processes and Wave Propagation.