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Wave phenomena governed by fractional Moore-Gibson-Thompson equations

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In acoustics, higher-order-in-time equations arise when taking into account a class of (fractional) thermal relaxation laws in the modeling of sound wave propagation. In this talk, we will discuss the analysis of initial boundary value problems for a family of such equations and determine the behavior of solutions as the relaxation time vanishes. The studied model can be viewed as a generalization of the well-established (fractional) Moore–Gibson–Thompson equation with three, in general nonlocal, convolution terms involving two different kernels. The interplay of these convolutions will influence the uniform analysis and the limiting procedure.

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