

Fundamental solution of the time-fractional telegraph equation in higher dimensions

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In this talk we present some results concerning the fundamental solution (FS) of the multidimensional time-fractional telegraph equation with time-fractional derivatives in the Caputo sense. In the Fourier domain the FS is expressed in terms of a multivariate Mittag-Leffler function. The Fourier inversion leads to a representation of the FS in terms of a H-function of two variables. An explicit series representation of the FS, depending on the parity of the dimension, is presented. As an application, we study a telegraph process with Brownian time. Finally, we present some moments of integer order of the FS, and some plots of the FS for some particular values of the dimension and of the fractional parameters.