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Application of the Lie group of scaling transformations to the fractional diffusion-wave equation

In this talk a symmetry group of scaling transformations is determined for the fractional diffusion-wave equation of order α, containing among particular cases the diffusion equation and the wave equation. For its group-invariant solutions an ordinary differential equation of fractional order with the new independent variable $z = xt^{-\alpha/2}$ is derived. The derivative then is an Erdelyi-Kober derivative depending on a parameter α and its solution is given in terms of generalized Wright functions. The connection with the well-known results in the case of derivatives of integer order will also be presented.