

**MELLIN TRANSFORM AND SUBORDINATION LAWS
IN FRACTIONAL DIFFUSION PROCESSES**

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*Dedicated to Paul Butzer, Professor Emeritus,
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on the occasion of his 75-th birthday (April 15, 2003)*

Abstract

The Mellin transform is usually applied in probability theory to the product of independent random variables. In recent times the machinery of the Mellin transform has been adopted to describe the Lévy stable distributions, and more generally the probability distributions governed by generalized diffusion equations of fractional order in space and/or in time. In these cases the related stochastic processes are self-similar and are simply referred to as fractional diffusion processes. In this note, by using the convolution properties of the Mellin transform, we provide some (interesting) integral formulas involving the distributions of these processes that can be interpreted in terms of *subordination laws*.

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