

Contributed Talk :

*Optimal control of subdiffusion processes with the
fractional Fokker-Planck control framework*

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Abstract:

We deal with the optimal control framework of subdiffusion processes via the probability density function (PDF) of a Lévy stochastic process.

The optimal control framework is based on a fractional Fokker-Planck equation that governs the time evolution of the PDF, and on tracking objectives of terminal configuration of the desired PDF.

The resulting optimality system for the solution of the optimal control problems is a system of partial differential equation with fractional evolution operators.

By using a suitable discretization scheme, the numerical solution of the fractional Fokker-Planck equation is guaranteed to be positive.

The effectiveness of the proposed computational framework is validated with numerical experiments.

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