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Functional Representation and Response Behavior of Aging Anomalous Diffusion Processes STEPHAN EULE, MPI DS Goettingen — The functional representation of stochastic processes provides a powerful method to calculate average values of path dependent observables. Here, the functional representation of Continuous Time Random Walks (CTRWs) and Fractional Fokker-Planck Equations is presented. This formulation, which is based on an alternative formulation of CTRWs, is then used to tackle the delicate and open problem of calculating the response of a CTRW to an external time-dependent perturbation. For the fractional Ornstein-Uhlenbeck process, the response function is calculated explicitly. It is proven that the fluctuation-dissipation theorem holds when the process is perturbed away from equilibrium.

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