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Response Dynamics of an over damped driven linear chain of coupled fractional oscillators B.N. NARAHARI ACHAR, JOHN W. HANNEKEN, The University of Memphis — The dissipative motion of an elastic chain in a random potential provides an interesting model relevant to several phenomena in Condensed Matter Physics. A useful alternative approach is one in which the dissipative term is expressed as a fractional derivative. A generalized model, a linear chain of coupled fractional oscillators is presented here. The generalization is carried out operationally by starting with the integral equation of motion of driven, over damped, linear chain of harmonic oscillators (in which the inertial term is absent) and replacing the regular integral by a fractional integral according to the methods of fractional calculus. The solution is obtained by Laplace transforms. In the continuum limit the fractional diffusion- wave equation is obtained. The solution and numerical application are discussed.

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