Abstract Submitted
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The effects of magnetic field and temperature quenches on non-equilibrium relaxation properties of vortex lines in type-II superconductors[1] HIBA ASSI, Department of Physics, VA Tech, ULRICH DOBRAMYSL, Mathematical Institute, University of Oxford, MICHEL PLEIMLING, UWE TÄUBER, Department of Physics, VA Tech — Technological applications of type-II superconductors require a deep understanding of the dynamics of vortex matter in these complex materials. We model vortices in the London limit as interacting elastic lines, and simulate their dynamics employing a Langevin molecular dynamics (LMD) algorithm. This LMD algorithm is utilized to investigate the non-equilibrium relaxation properties of interacting lines, subject to randomly-placed point or correlated columnar pinning sites, by studying various two-time correlation functions. We consider experimentally-motivated initial conditions by applying quenches in the system temperature or the magnetic field, which is realized by suddenly adding or removing vortex lines from the system.

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Hiba Assi
Department of Physics, VA Tech

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