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Non-equilibrium dynamics of the complex Ginzburg-Landau equation[1] WEIGANG LIU, UWE TAUBER, Virginia Tech — The complex Ginzburg-Landau equation combines the quantum many-particle nonlinear Schrdinger equation with the time-dependent Ginzburg-Landau equation or model A relaxational dynamics. It arises in quite diverse contexts that include spontaneous pattern formation out of equilibrium, chemical oscillations, multi-mode lasers, thermal convection in binary fluids, cyclic population dynamics, and driven-dissipative Bose-Einstein condensates. Indeed, the complex Ginzburg-Landau equation exhibits a remarkably rich phase diagram with intriguing dynamics. We employ detailed numerical studies as well as analytical tools such as the perturbative renormalization group and the spherical model limit to study the non-equilibrium coarsening and critical aging scaling for the complex Ginzburg-Landau equation following quenches from an initial disordered configuration to either one of the ordered phases or the critical point.

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