Dynamic Compressibility and aging in Wigner crystals and quantum glasses

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PIERRE LE DOUSSAL, LPTENS CNRS UMR 8549 24, Rue Lhomond 75231 Paris Cedex 05, France — We study the non-equilibrium linear response of quantum elastic systems pinned by quenched disorder with Schwinger-Keldysh real-time techniques complemented by a mean-field variational approach. We find (i) a quasi-equilibrium regime in which the analytic continuation from the imaginary-time replica results holds provided the marginality condition is enforced; (ii) an aging regime. The conductivity and compressibility are computed. The latter is found to cross over from its dynamic to static value on a scale set by the waiting time after a quench, an effect which can be probed in experiments in e.g. Wigner glasses.

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