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Connecting fluctuation-dissipation ideas to synchronization in equilibrium and nonequilibrium systems CADILHE ANTONIO, ARTHUR VOTER, T-1 Group, Los Alamos National Laboratory — Nonequilibrium systems have both fundamental and technological interest for their unusual behavior, but surprisingly little research effort has been put into diagnosing how far a system is from equilibrium. Here, we show a connection between Langevin synchronization ideas and the position auto-correlation function. We present results for the thermalization timescale of a particle in equilibrium or out-of-equilibrium while coupled to heat a reservoir. In the out-of-equilibrium system the particle is driven away from equilibrium by a time-dependent potential.

Cadilhe Antonio
T-1 Group, Los Alamos National Laboratory

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