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# Plastic flow and stochastic resonance in soft glassy materials

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Flow in soft-glasses occurs via a sequence of reversible elastic deformations and local irreversible plastic rearrangements.
Yield events in the material cause kicks adding up to an
effective thermal noise, an intuition that has inspired
the development of phenomenological models aiming at
explaining the main features of soft-glassy rheology.
We provide a specific scenario for such mechanical activation,
based on a general paradigm of non-equilibrium statistical mechanics,
namely stochastic resonance.
By using mesoscopic simulations of dense emulsions subject to an
oscillatory strain, we characterize the response of the system and highlight a resonance-like behaviour in the plastic rearrangements. This confirms that the synchronization of the system response
to an external time-dependent load is triggered by the mechanical noise resulting from intrinsic structural disorder, quantified by the polydispersity.

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