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Unexpected stop-and-go when DNA is pulled through a network JUAN GUAN, BO WANG, SUNG CHUL BAE, STEVE GRANICK, University of Illinois Urbana Champaign — We perform single-molecule imaging of lambda-DNA chains when DC electric fields drive them through agarose networks in which they are heavily entangled. Velocity is decidedly unsteady. Exhaustive statistics reveal how motion switches between "mobile" and "pause" states, the latter differing from well-known "hooking." As these observations appear to be inconsistent with the prevailing theories of DNA electrophoresis, we are also engaged in measurements that discriminate between motion of the chain ends and the chain centers, by direct two-color fluorescence imaging.

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