**Dislocation Dynamics in a Dodecagonal Quasiperiodic System**
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We have developed a set of numerical tools for the quantitative analysis of defect dynamics in quasiperiodic structures, with the intention of addressing some of the open questions regarding the dynamics of dislocations in quasicrystals. We are applying these tools to study dislocation motion in the dynamical equation of Lifshitz and Petrich [1] whose steady state solutions are quasiperiodic, exhibiting dodecagonal symmetry.

Here we demonstrate - by showing real-time computer simulations - our ability to inject an arbitrary set of dislocations, parameterized by the homotopy group of the D-torus, and quantitatively follow the positions of these dislocations as the equation evolves in real time. We measure and analyze the dislocation velocity as a function of applied stress and shear, as well as the phonon and phason strains that accompany this motion as the system evolves in time. These results display intriguing differences with respect to the behavior of dislocations in periodic solutions of the dynamical equation.

[1] Lifshitz R., Petrich D.M., *Phys. Rev. Lett.,* 1997, **79**, 1261.
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