MOVING EXCITATIONS IN CATION LATTICES

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S u m m a r y

We consider a model made out of identical particles that repel each other with the Coulomb interaction. We study numerically and analytically the existence and properties of supersonic kinks, showing that they are very easy to be produced and propagate long distances. They have a wide range of velocities and energies. We are motivated by a special characteristic of the muscovite mica mineral. Tracks from particles such as muons can be distinguished in a complex decoration, but the only explanation to most of the tracks is localized excitations called quodons. They move in the cation lattice, sandwiched between the silicate layers, along the lattice directions. Quodons have also been observed experimentally [EPL 78 (2007) 1005].