SYMBOLIC DYNAMICS AND ATOM DISLOCATIONS IN CRYSTALS

ENRICO VALDINOCI

We consider a nonlocal equation driven by a perturbed periodic potential. We construct multibump solutions that connect one integer point to another one in a prescribed way. In particular, heteroclinic, homoclinic and chaotic trajectories are constructed. This result regarding symbolic dynamics in a fractional framework is part of a study of the Peierls-Nabarro model for crystal dislocations: the methods of dynamical systems are exploited here to construct complex spatial configurations of the atom inside the crystal.

DEPARTMENT OF MATHEMATICS AND STATISTICS,
UNIVERSITY OF WESTERN AUSTRALIA,
35 STIRLING HIGHWAY, WA6009
CRAWLEY, AUSTRALIA
E-mail address: enrico.valdinoci@uwa.edu.au