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Traveling waves of a curvature flow in almost periodic media. (English) Zbl 1182.35073

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The authors investigate travelling-wave solutions for a curvature-flow equation in a 2D media with almost periodic vertical striations (the heterogeneity). Two types of travelling waves are constructed: one having a straight line profile and the second having a V-shape profile. Interestingly, for the first type of travelling waves the profile is given by means of a function whose derivative is almost periodic (in the sense of H. Bohr), while the profile of the second type of travelling wave is quite similar to a pulsating cone, whose tails approach asymptotically profiles of first sort of travelling waves. Finally, an explicit expression for the averaged (homogenized) travelling wave speed is given.

Reviewer: Adrian Muntean (Eindhoven)

MSC:

35C07 Traveling wave solutions
35B27 Homogenization in context of PDEs; PDEs in media with periodic structure
35K93 Quasilinear parabolic equations with mean curvature operator

Keywords:

averaging; averaged wave speed

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