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Adam Oberman* (aoberman@sfu.ca), SC K10540, Mathematics Department, Simon Fraser University, 8888 University Drive, Burnaby, B.C. V5A 1S6, Canada. *Front propagation in three scale media.*

We study the propagation of fronts in media with three scales: a macro scale, on which a slow parameter varies, a microscale on which some form of homogenization is required to effectively solve the equations, and a mesoscale on which the homogenized materials vary slowly. We used a vectorgram based approach to record effective speed on the mesoscale, and a specialized more efficient homogenization technique.

Even in simple situations where the speeds are varying periodically (e.g. checkerboard, stripes) the resulting homogenized speeds are non-Riemannian. So computing the solution to the macroscale problems requires the use of general front propagation solvers. (Received September 15, 2008)