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Umberto Mosco* (mosco@wpi.edu), Prof. Umberto Mosco, Department of Mathematics - WPI, 100 Institute Road, Worcester, MA 01609. *On a 1D approximation of the 2D Laplacian.*

On a 1D approximation of the 2D Laplacian

Abstract

We describe how the 2–dimensional Laplacian can be approximated on a square by a sequence of 1–dimensional Laplacians. This result shows that 1D particle dynamics can generate asymptotically a distributed 2D interaction. The construction is based on convergence properties of filling-space fractal curves and Sobolev spaces. (Received July 28, 2017)