

Applications of the Discrete Total Variation in Imaging

José Vidal-Núñez¹ Roland Herzog² Stephan Schmidt³ Marc Herrmann⁴
Gerd Wachsmuth⁵

Taking as starting point the proposed discrete definition of the total-variation (TV) seminorm for Lagrangian finite element functions, we discuss how many popular algorithms for solving TV-L1 and TV-L2 image denoising and related problems can be employed efficiently in this particular setting. Numerical results will be presented and the performance of the algorithms investigated for different polynomial orders.

¹TU Chemnitz, Faculty of Mathematics
jose.vidal-nunez@mathematik.tu-chemnitz.de

²TU Chemnitz, Faculty of Mathematics
roland.herzog@mathematik.tu-chemnitz.de

³Universität Würzburg, Institut für Mathematik
stephan.schmidt@mathematik.uni-wuerzburg.de

⁴Universität Würzburg, Institut für Mathematik
marc.herrmann@mathematik.uni-wuerzburg.de

⁵BTU Cottbus-Senftenberg
gerd.wachsmuth@b-tu.de