

# Aspects of total variation and connections with image processing

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In [1] a BMO-type seminorm involving  $\varepsilon$ -cubes of general orientation was introduced in order to characterize sets of finite perimeter. Later, in [2] a more general representation formula for SBV functions was given. For BV functions a such representation does not exist. Inspired by [3] we study the connections between a BMO-type non-local functional and the total variation. Moreover we study a minimization problem based on the total variation image denoising model of Rudin, Osher, and Fatemi. Based on joint works with R. Schiattarella.

- [1] L. Ambrosio, J. Bourgain, H. Brezis, and A. Figalli, *BMO-type norms related to the perimeter of sets*, Comm. Pure Appl. Math. **69** (2016), no. 6, 1062–1086.
- [2] N. Fusco, G. MoscarIELlo, and C. Sbordone, *A formula for the total variation of SBV functions*, J. Funct. Anal. **270** (2016), no. 1, 419–446.
- [3] H. Brezis and H.-M. Nguyen, *Non-local functionals related to the total variation and connections with image processing*, Ann. PDE **4** (2018), no. 1, Paper No. 9, 77.