

TV DENOISING AND EVOLUTION OF SETS

(V. CASELLES, M. NOVAGA), C. PÖSCHL

Let $S \subset \mathbb{R}^2$ be the union of two convex sets with smooth boundary. We connect the levelsets of the minimizers u_λ of

$$(ROF) \quad \frac{1}{2} \|u - \chi_S\|_{L^2}^2 + \lambda \|u\|_{TV}$$

to the minimizers of a (simpler) set-minimization problem in order to obtain a geometrical characterization of the levelsets of u_λ . Moreover, we calculate explicit minimizers of (ROF), when S is the union of two nonintersecting circles/squares or a starshaped (nonconvex) set using simple morphological operators. Finally I give an idea how to obtain the dual BV-norm of χ_S .