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Abstracts of Short Communications and Posters

Section:

10. Partial Differential Equations

1991 MS Classification: 35
Kawohl, Bernd, University of Cologne, Germany
Image processing and anisotropic diffusion
The Perona Malik model for anisotropic diffusion is given by the differential equation $u_t - \mathrm{div}(a(|\nabla u|^2)\nabla u) = 0$ in $\Omega \times (0,T)$ under no flux boundary condition $a(|\nabla u|^2)\frac{\partial u}{\partial \nu} = 0$ on $\partial\Omega \times (0,T)$ and with initial gray scale $u(x,0) = g(x)$. Here $a(s)$ is positive and decreases to zero as $s \to \infty$. I report on qualitative behaviour of C^1 solutions to this type of equation, such as maximum and comparison principles, edge enhancement and so on.
Reference: B. Kawohl & N. Kutev, Maximum and comparison principle for one-dimensional anisotropic diffusion. Mathematische Annalen (1998), to appear