

# 学术报告

## Image denoising via a new anisotropic total-variable-based model

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**Venue:** Room 112, Center for Applied Mathematics

**Abstract:** To keep local structures when denoising the degraded image, we propose a new anisotropic total variation restored model based on the combination of the gradient operator  $\nabla$  and the adaptive weighted matrix  $\text{bf}\{T\}$  into the  $\ell^1$ -norm regularized term. The weighted matrix depends on the edge indicator function along the  $x$  and  $y$ -axis direction differences, so this matrix can rotate direction of the gradient operator tending to bigger weight and therefore can describe the local features in image. In order to cope with the nonsmoothing of the proposed model, we employ the alternating direction method of multipliers method (ADMM) to solve it. Relying on the convexity, the convergence of the proposed numerical algorithm is provided as well. Denoising experiments on the artificial images and benchmark images show the effectiveness of the proposed model by comparing it to other well-known gradient-based methods in terms of restoration quality. As some extensions, we also consider to other image processing problems such image segmentation and the restoration to the impulse noise.

欢迎大家参加！