

**Meeting:** 1002, Pittsburgh, Pennsylvania, SS 15A, Special Session on PDE-Based Methods in Imaging and Vision

1002-65-159      **Seongjai Kim\*** ([skim@ms.uky.edu](mailto:skim@ms.uky.edu)), Department of Mathematics, University of Kentucky,  
Lexington, KY 40506. *Loss and Recovery of Fine Structures in PDE-based Image  
Denoising*. Preliminary report.

PDE-based denoising processes such as the total variation minimization and the motion by mean curvature and their variants often lead to significant loss of fine structures unless numerical schemes are carefully designed. The talk is concerned with numerical techniques for PDE-based denoising models that can preserve/recover fine structures in the image. The essentially non-dissipative (ENoD) schemes are considered to minimize numerical diffusion, in particular near edges. Furthermore, effective strategies are studied for variable constraint parameters which can recover fine structures back to the image. Here the goal is to denoise images with the residual texture-free. Various examples are presented to show efficiency and reliability of the numerical techniques. (Received September 13, 2004)