1035-49-1492   **Jung-Ha An*** (`jan@csustan.edu`), CSU Stanislaus, Mathematics Department, 801 West Monte Vista Avenue, Turlock, CA 95382, **Mikael Rousson**, 755 College Road East, Princeton, NJ 08540, and **Chenyang Xu**, 755 College Road East, Princeton, NJ 08540. Γ-*Convergence Approximation to Piecewise Smooth Medical Image Segmentation.*

Despite many research efforts, accurate extraction of structures of interest still remains a difficult issue in many medical imaging applications. This is particularly the case for magnetic resonance (MR) images where image quality depends highly on the acquisition protocol. In this paper, we propose a variational region based algorithm that is able to deal with spatial perturbations of the image intensity directly. Image segmentation is obtained by using a Γ-Convergence approximation for a multi-scale piecewise smooth model. This model overcomes the limitations of global region models while avoiding the high sensitivity of local approaches. The proposed model is implemented efficiently using recursive Gaussian convolutions. Numerical experiments on 2-dimensional human liver MR images show that out model compares favorably to existing methods. (Received September 20, 2007)