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**Angel R Pineda\***, Mathematics Department, Manhattan College, Riverdale, NY. *Task-Based Optimization of Image Reconstruction in Magnetic Resonance Imaging (MRI)*. Preliminary report.

Current approaches to accelerate magnetic resonance imaging (MRI) use prior information about the objects being imaged to acquire less data. This leads to image reconstruction methods with regularization. The associated reconstructions generate images which have the potential to provide the same clinical information at shorter acquisition times than standard methods. The degree to which the images from these accelerated methods are useful depends on how the acceleration affects the performance on clinical tasks. In this work, we study the effect of the regularization parameter on detection of lesions and compare it with standard metrics of image fidelity (mean squared error and structural similarity). (Received September 01, 2015)