1125-00-1723     **Ilker Kocyigit\*** (`ilkerk@umich.edu`). *Incorporating Sparsity Information in Inverse Problems.* The existence of prior knowledge in inverse problems offers new challenges as well as new opportunities for bringing new ideas to inverse problems. The prior knowledge of sparsity of unknown localized targets might be used to improve various aspects of some inverse problems such as the ones arising from array imaging and Synthetic Aperture Radar (SAR). In this talk we discuss some of the sparsity promoting methods used in these inverse problems as well as the computational aspects of their construction and analysis. We discuss the stability and resolution of the reconstructed images and how they are related to the features of the source configuration and the measured data. Such features include number of measurement data sets and its richness, sparsity and well-separatedness properties of the support of the unknown configuration. We present numerical simulations to support the presented results. (Received September 19, 2016)