

Ground Moving Target Indication (GMTI) with airborne or space based radar systems is generally based on Space-Time Adaptive Processing (STAP) using three or more spatial channels. Classically, tracking and incorporation of background information - as the street net - is applied to plots, i.e. after moving target detection and position estimation. Today, new algorithms and increasing computation capabilities will make possible an alternative approach: Knowledge based signal processing will use the prior information from external sources or knowledge afore learned by the radar. The street net information serves as a basis for extended signal models including fixed scatterers and objects moving along the streets. On the one hand, the reflectivity of the background scene is more or less continuously distributed, while on the other hand the vehicles moving along the streets are sparsely scattered. This fact suggests the idea to apply recently developed algorithms from the research area of compressive sensing and sparse representation, which has been treated for GMTI without street information e.g. in [2]. In this paper, signal models and appropriate algorithms will be introduced and applied in simulations.