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**Fengshan Liu\*** (fliu@desu.edu), Applied Mathematics Research Center, Delaware State University, 1200 N DuPont Hwy, Dover, DE 19901, and **Guoping Zhang, Jiguang Sun** and **Xiquan Shi**. *Modified Back-Projection Methods for Synthetic Aperture Radar Imaging*.

Back-projection algorithm is the technical core for synthetic aperture radar (SAR) that has been extensively studied during the last three decades for acquiring high-resolution radar imaging. The problem of reconstructing the radar image from the measured data is ill-posed particularly due to the noise caused by the environment, non-ideal motion of the radar and the non-uniform and possibly aliased sampling of the data recorded along the radar path. In this paper, we provide several modified Back-projection methods for SAR to produce higher quality images by reducing the artifacts and side-lobes caused by the non-uniform and possibly aliased sampling of the data. Numerical simulations show that our methods provide better SAR image with less artifacts and less side-lobes. (Received September 26, 2006)