论文

基于四阶混合累积量的雷达目标二维超分辨成像

高勋章, 黎 湘, 庄钊文

国防科技大学ATR国防科技重点实验室 长沙 410073

摘要
针对高斯色噪声条件下雷达目标二维成像问题，提出了一种基于四阶混合累积量的二维ESPRIT超分辨成像方法。利用四阶混合累积量对高斯色噪声的自动抑制，降低了噪声对成像质量的影响。通过保持目标特征矩阵结构不变，解决了现有方法在长采样数据条件下计算量过大的问题。仿真实验表明该方法的成像效果和散射点位置估计精度优于传统方法。
关键词　二维超分辨成像　四阶混合累积量　二维谐波恢复　高斯色噪声
分类号　TN957.51

Two-Dimensional Super-Resolution Imaging of Radar Target Based on Fourth-Order Mixed Cumulants

Gao Xun-zhang, Li Xiang, Zhuang Zhao-wen

ATR Lab., National University of Defense Technology, Changsha 410073, China

Abstract
A new method for two-dimensional super-resolution imaging of radar target in colored Gaussian noise, called two-dimensional FOMC (Fourth-Order Mixed Cumulants) based ESPRIT (2d-FOMCESPRIT) , is presented in this paper. The image is improved for the FOMC could eliminate the Gaussian noise automatically. Additionally this method is computationally much less intensive by holding the dimensions of the feature matrix in the presence of long records. Simulation results show that this method has better image quality than other methods.
Key words　Two-dimensional super-resolution imaging　Fourth-Order Mixed Cumulants (FOMC)　Two-dimensional harmonic retrieval　colored Gaussian noise

DOI :

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作者个人主页　高勋章; 黎 湘; 庄钊文