

论文

## 基于距离-多普勒算法的俯冲弹道条件下弹载SAR成像

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摘要

该文首先建立了通用的曲线弹道合成孔径雷达(Synthetic Aperture Radar, SAR)回波信号模型, 分析了加速度引入的相位误差, 推导了是否进行曲线弹道补偿的定量条件, 然后针对俯冲弹道情况, 分析了弹载SAR回波信号的特点, 并根据弹载SAR特点进行了合理近似, 设计了基于距离-多普勒算法的成像方法, 与直线孔径下的距离-多普勒算法相比, 仅仅是修改了部分相位因子, 没有因为孔径的非直线增加成像算法的复杂性。

关键词 [弹载SAR](#) [SAR成像](#) [俯冲弹道](#)

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## Range Doppler Algorithm Based Missile-Borne SAR Imaging with Diving Maneuver

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Abstract

The general relative range model for non-linear trajectory is built firstly, followed by the maneuver induced phase errors analysis. The quantitative conditions of ignoring these errors are deduced later. Then this paper concerns on the issue of missile-borne SAR on the trajectory with diving maneuver: the characteristics of signals are analyzed and a range Doppler based algorithm is presented according to these characteristics.

Compared with the range Doppler algorithm under linear aperture, the new one just modifies some phase correction factors and needs no additional complexity owing to nonlinear aperture.

Key words [Missile-borne SAR](#) [SAR imaging](#) [Trajectory with diving maneuver](#)

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